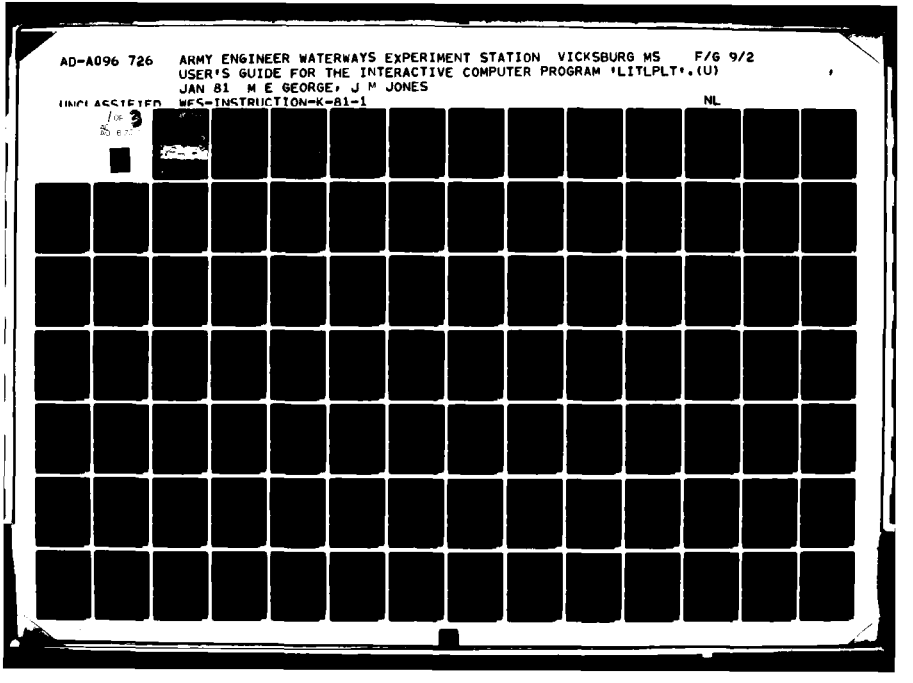

AD-A096 726
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/G 9/2
USER'S GUIDE FOR THE INTERACTIVE COMPUTER PROGRAM 'LITLPLT'.(U)
JAN 81 M E GEORGE, J M JONES
UNCLASSIFIED WES-INSTRUCTION-K-81-1
NL

INSTRUCTION REPORT K-81-1

USER'S GUIDE FOR THE INTERACTIVE COMPUTER PROGRAM "LITLPLT"

by

Michael E. George, James M. Jones II

Automatic Data Processing Center
U. S. Army Engineer Waterways Experiment Station
P. O. Box 631, Vicksburg, Miss. 39180

January 1981
Final Report

Prepared for U. S. Army Engineer District, Little Rock
P. O. Box 867, Little Rock, Ark. 72203

Destroy this report when no longer needed. Do not return it to the originator.

The findings in this report are not to be construed as an official *Department of the Army position* unless so designated by other authorized documents.

The contents of this report are not to be used for advertising, publication, or promotional purposes. Citation of trade names does not constitute an official endorsement or approval of the use of such commercial products.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: Instruction Report K-81-1	2. GOVT ACCESSION NO.: AD-A096726
3. RECIPIENT'S CATALOG NUMBER:	
4. TITLE (and Subtitle): USER'S GUIDE FOR THE INTERACTIVE COMPUTER PROGRAM "LITLPLT"	5. TYPE OF REPORT & PERIOD COVERED: Final report
	6. PERFORMING ORG. REPORT NUMBER:
7. AUTHOR(s): Michael E. George, James M. Jones II	8. CONTRACT OR GRANT NUMBER(s):
9. PERFORMING ORGANIZATION NAME AND ADDRESS: U. S. Army Engineer Waterways Experiment Station, Automatic Data Processing Center, P. O. Box 631, Vicksburg, Miss. 39180	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS:
11. CONTROLLING OFFICE NAME AND ADDRESS: U. S. Army Engineer District, Little Rock, P. O. Box 867, Little Rock, Ark. 72203	12. REPORT DATE: January 1981
	13. NUMBER OF PAGES: 193
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)	15. SECURITY CLASS. (of this report): Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE:

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Computer graphics
Computer programs
Computerized simulation
Data processing
Sediment

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Program LITLPLT is a general-purpose interactive graphics program which displays, modifies, updates, and retrieves sediment range survey data. The program is operational on Honeywell 600/6000 computers. The graphics software used is the Graphics Compatibility System (GCS). LITLPLT is an overlaid computer program that executes with the following Tektronix devices:

a. 4014 graphics terminal.

(Continued)

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. ABSTRACT (Continued).

b. 4631 hard copy unit.

c. 4663 pen-plotter.

d. 4953/4954 tablet.

The program uses "menu boards" which allow the user to select the option(s) to be exercised. The program operates with data bases built from surveys taken by the Corps of Engineers' Little Rock District office.

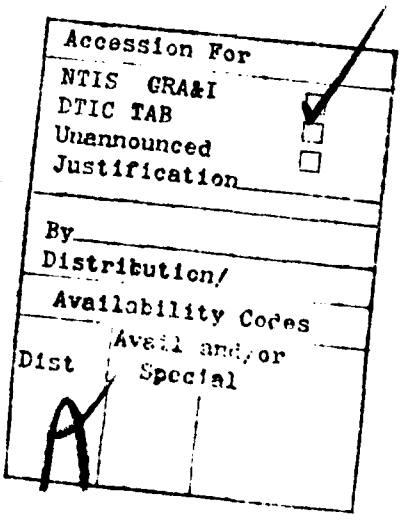
PREFACE

This report is the result of work performed at the U. S. Army Engineer Waterways Experiment Station (WES) under 96X3121 O&M CA310-0918 of 11 September 1978 for the U. S. Army Engineer District, Little Rock (LRD). The work concerned development of an interactive graphics computer program called "LITLPLT."

The work was performed by the Research and Development Software Group (RADS) of the Automatic Data Processing (ADP) Center, WES, as part of a project to develop computer graphics applications for the Corps of Engineers. This report was written by Messrs. Michael E. George and James M. Jones II, RADS. The work was under the supervision of Mr. Fred T. Tracy, Chief, RADS, and Dr. N. Radhakrishnan, Special Technical Assistant, ADP Center, and under the general supervision of Mr. Donald L. Neumann, Chief, ADP Center. Special technical assistance in computer software was given by Mr. James R. Jefferson, Jr., Computer Systems Division, ADP Center.

Liaison was maintained between WES and LRD by means of office conferences and telephone communications with Mr. James Baker of LRD who provided technical guidance in defining the problem.

Directors of WES during the preparation and publication of this report were COL John L. Cannon, CE, and COL Nelson P. Conover, CE. Technical Director was Mr. F. R. Brown.



CONTENTS

CONVERSION FACTORS, INCH-POUND TO METRIC (SI) UNITS OF MEASUREMENT

Inch-pound units of measurement used in this report can be converted to metric (SI) units as follows:

Multiply	By	To Obtain
feet	0.3048	metres
inches	2.54	centimetres

USER'S GUIDE FOR THE INTERACTIVE COMPUTER PROGRAM "LITLPLT"

PART I: INTRODUCTION

Purpose of Program

1. Storage and retrieval of sediment range survey data for a particular river and its tributaries for even a single year is an enormous task. Yet establishment of large data bases drawing on years of such data is essential to the overall success of efforts designed to monitor and analyze riverine processes. Program LITLPLT was developed to handle this job. It is a general-purpose interactive graphics computer program which displays, modifies, updates, and retrieves sediment range survey data.

Program Specifications

2. LITLPLT was developed for use on a Honeywell time-sharing system [Series 60 (Level 66)/6000]. Language used is the Honeywell FORTRAN [Series 60 (Level 66)/6000] version of ANSI FORTRAN. External subroutines needed for execution are the Graphics Compatibility System (GCS), version 2D, Library. Devices needed for complete execution of the program are:

a. Tektronix 4014 graphics terminal.
b. Tektronix 4631 hard copy unit.
c. Tektronix 4663 graphics pen-plotter.
d. Tektronix 4953/4954 graphics tablet.

Basic Approach and Philosophy

3. Interactive graphics allows the user to manipulate a given set of displayed output data until the picture is satisfactory for his

analysis. In order to best support this particular feature, a series of "menu boards" was written for LITLPLT to contain all the necessary options the user may select. This concept makes it entirely feasible for the user to select a certain option from one menu board which in turn accesses a second menu board with another set of options the user may select. Implementation of this particular feature has made the capability of the program virtually unlimited. Enhancements to the program (additional options, etc.) can easily be made with the menu-driven system.

4. Figure 1 illustrates the entire tree-like structure of the menu-driven system. Figure 2 contains all options in each individual menu.

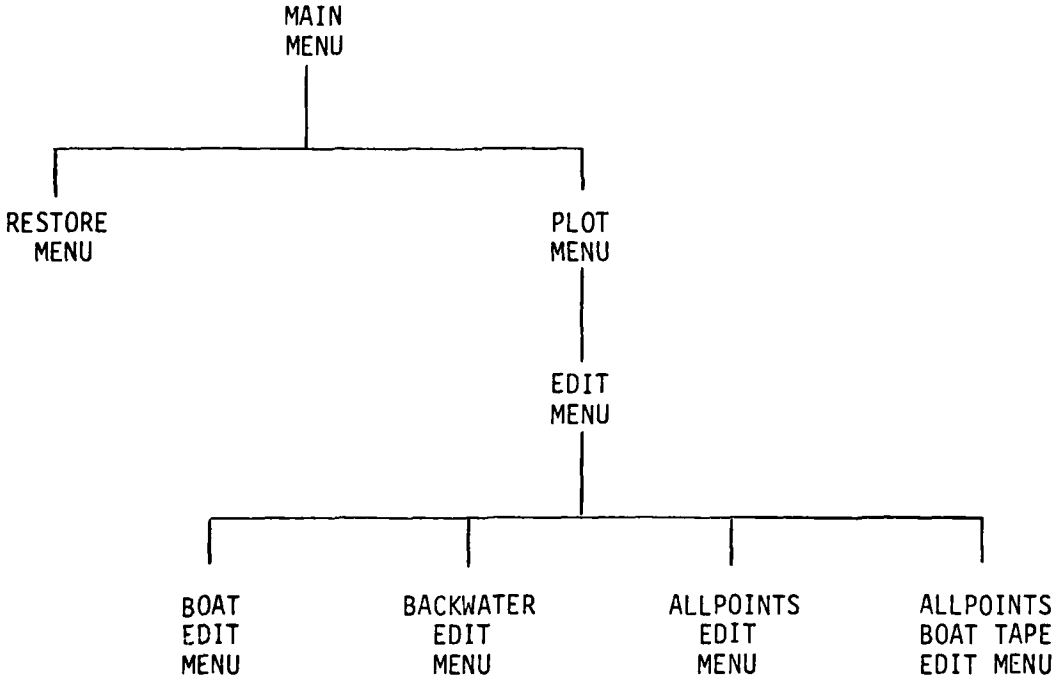


Figure 1. Tree-like structure of the menu-driven system in LITLPLT

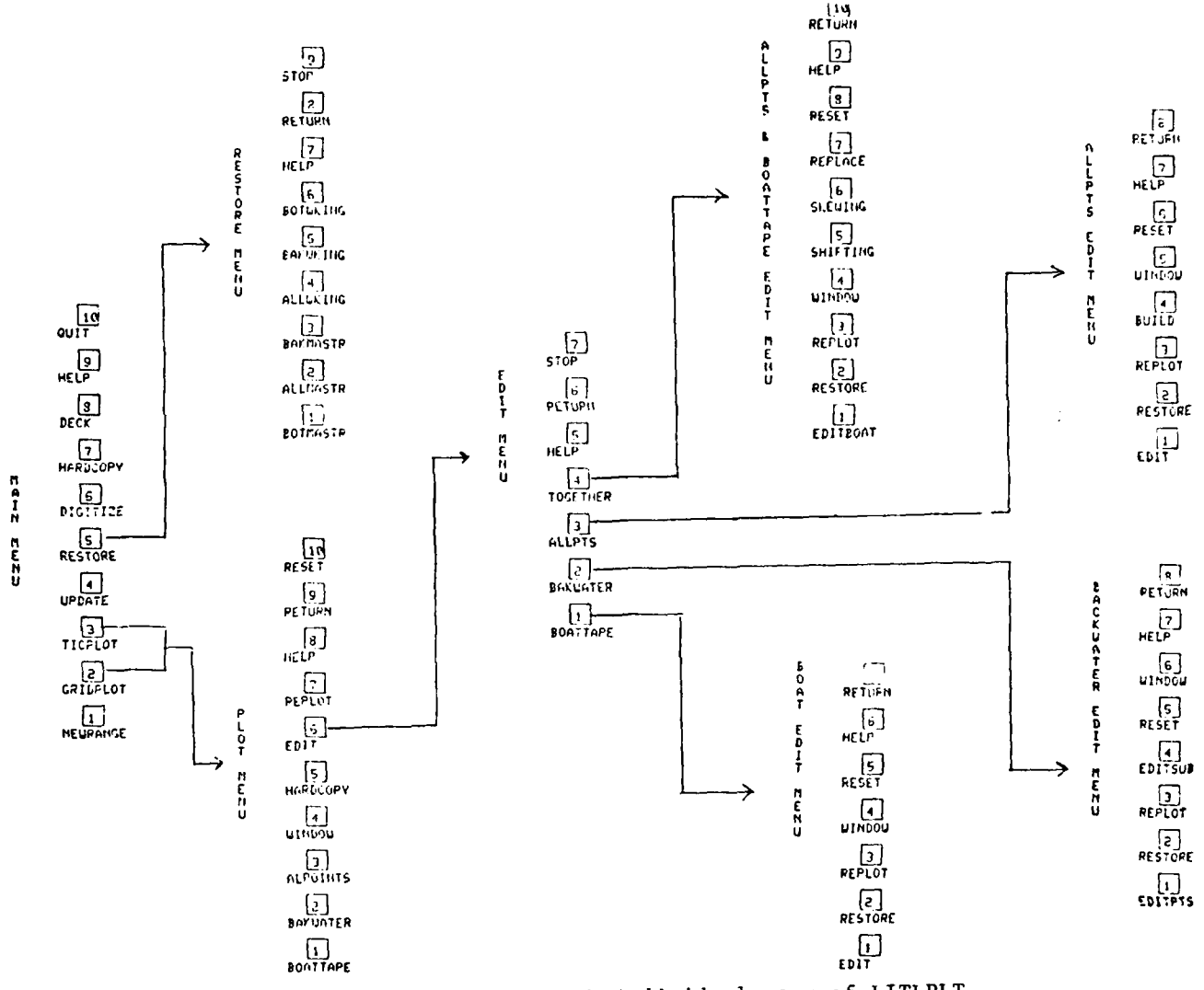


Figure 2. Options in each individual menu of LITLPLT

PART II: USER'S GUIDE

Mode of Operation

5. LITLPLT is operational on a Honeywell time-sharing system [Series 60 (Level 66)/6000] for use with a Tektronix 4014 graphics terminal.

Organization

6. The program's structure involves a series of overlays. The main program allows the user to select either the data base creation overlay or the display portion of the code which consists of the remaining five overlays.

7. The first overlay consists of the MAIN MENU, the RESTORE MENU, and the EDIT MENU. The second overlay contains the ALL POINTS AND BOAT TAPE EDIT MENU. Overlay three consists of the BACKWATER EDIT MENU. Overlay four is the ALL POINTS EDIT MENU. The fifth overlay contains the BOAT EDIT MENU. The data base creation routines comprise the sixth overlay.

8. The actual execution of the code allows the user to branch from one menu to another by simply selecting the correct option. Thus, all functions in LITLPLT are recursive.

Initiation

Sign-on procedure

9. To use the U. S. Army Engineer Southwestern Division (SWD) Honeywell Series 6000 system at either the 30-character-per-second or the 120-character-per-second data transmission rate, the user first dials one of the specified telephone numbers (call User Services, ADP Center, SWD, to obtain the current telephone numbers). With a successful sign-on, the computer will respond as follows:

```
0313200
HIS TIMESHARING ON 01/10/80 AT 16.419  CHANNEL 4100 TS1
USER ID -
```

The user then gives his user identification (USER ID) and, after a carriage return, the corresponding password to that USER ID. The computer will respond with an asterisk (*). The user then keys in the following:

```
*FORT NEW
```

The program is now ready for execution.

Start execution

10. To begin execution of the program, the user keys in the following:

```
RUNH HSTAR63
```

The computer responds with the date and time as follows:

```
01/09/80    16.714
```

The program is set up to use the Tektronix 4014 graphics terminal as the primary device and the Tektronix 4663 graphics pen-plotter and the Tektronix 4953/4954 graphics tablet as its alternate devices. The Tektronix 4631 hardcopy unit is supplementary to make hardcopies of the information shown on the Tektronix 4014 screen.

Running the program

11. After execution is initiated, the following question is asked:

```
DO YOU WANT TO CREATE NEW DATA BASES (Y OR N)?
=
```

If the user responds with Y, then the data base creation overlay is invoked. A reply of N invokes the display portion of the code. These will be explained thoroughly in the following sections.

Data Base Creation

Types of data bases

12. There are three basic types of data available for use in LITLPLT: all points (AP), backwater (BW), and boat tape (BT). LITLPLT is used as a data manipulator for input data to the backwater analysis program LRD-I.*

13. LRD-I was originally written for a slow-speed computer. At that time, the number of points included in a cross section was critical because of the actual computation time required. For this reason, all of the surveyed points (X,Y coordinates) in the cross section were not used in the backwater computations. Two data files were made: one for the backwater analysis (BW), and one for plotting purposes only (AP). The AP data consisted of all surveyed points. The advent of high-speed computers has made use of AP data practical in backwater analysis. But the old BW data are still available and are useful. After all data have been updated, AP and BW data should contain essentially the same coordinates.

14. In summary, the AP file contains all of the survey information. The BW file contains some or, in some instances, all of the survey information. Some points may have been deleted from the AP data file to construct the BW data file, making the BW data file smaller.

15. The BT data are current survey data which will be used to update the AP file. They may have been in the form of magnetic tapes (hence the name "boat tapes"), survey field books, or plots.

Data base file structure

16. Each data base has four random files. Two of the files contain pertinent information for each individual range. The range number, the date created, and the most recent date that changes were made to the range form each individual record in these two files. One of the

---

* Thomas, W. A. 1967. "Multiple Backwater Profiles with Provisions for Bridge and Weir Losses," Program LRD-I (722-F3-M2130), U. S. Army Engineer District, Little Rock, Ark.

files becomes a "master" file in which restores can be made if the data have been lost or modified incorrectly. The other file becomes a "working" file where updates can be made. These two files are known as the "master" header file and "working" header file.

17. The other two files contain the actual survey points for each range defined in the header files. A maximum of 300 points is allowed for each range. The record number where these points can be located is also contained in the header files. Thus, the normal procedure is to select a range to be displayed. A search is made in the working header file as to the existence of the range. If found, the corresponding record number where the survey points are located is retained in memory. The program then accesses these two "points" files at the record number selected and reads into memory the survey points for that range. As is the case for the header files, there is a "master" points file and a "working" points file for each data base.

Input files for data base creation

18. Two types of input files are used to create the three data bases mentioned. The BT data base input file contains the actual records from the boat tape. Figure 3 is an example of this. The other type of input file is one that directly conforms to program LRD-I. An example of this type of input file is shown in Figure 4. An explanation of this deck setup is given in the user's guide for program LRD-I.

Execution

19. After responding with a Y to new data base creation, the program then gives the user the choice of what type of data base is to be created:

```
ARE YOU INPUTTING BOAT TAPE DATA (TYPE - 1)
                  ALL POINTS DATA(TYPE - 2)
                  BACKWATER DATA (TYPE - 3)
                  CREATE FILE ONLY (TYPE - 4)
                  BOAT TAPE FROM ALLPTS (TYPE - 5)
INPUT YOUR CHOICE?
```

Each of these options is discussed below.

20. Boat tape data base creation. Responding with a 1 to the above question identifies this type of data base creation. The necessary input file name is entered; and the initial record (C record) is

Figure 3. Boat tape input file

checked. If this record is OK, execution is continued. If not, the user is given the option of retyping the record or terminating execution if he is not sure of the necessary corrections. If execution is continued, the range number and reference mean sea level are input by responding to questions from the program. The starting X,Y coordinates of the range to be stored are printed, as are the final X,Y coordinates. The initial X,Y coordinates of the survey boat's path are also printed. The next record (S record) is then checked. As before, execution is continued if OK, and if not, the record may be retyped or execution terminated. If execution is continued, the final X,Y coordinates of the survey boat's path are listed. The remaining records (P records) are read and decoded into actual survey points which are then stored in the master and working points files. The range number and creation date

```
      1       0       1       0       0       0       0       0       0       0
*POOL NO. 3 (BACKWATER INPUT FILE)
*   FEB 1978
*PROGRAM NO. 722-M4-05B
*%CHANNEL PORTIONS WERE SURVEYED BEFORE THE 10 DEC 71 FLOOD
*THE OVERBANK PORTIONS WERE SURVEYED AFTER THE 10DEC 71 FLOOD]
Q1.     70000.  100000. 150000. 180000. 230000. 300000. 350000. 400000. 470000.
R182.0  182.0   182.0   182.0   182.0   183.2   185.4   186.7   188.0   189.6
P0.1    .00015


A72.3   1.      133.    1.      6.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C1.     1.      1.      1.      1.      1.
D192.0  192.0
E1.055
E2.1
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
G0.0    207.71  79.     197.13  128.    184.8   249.    184.1   313.    185.8
G418.   185.1   568.    183.7   628.    183.4   723.    183.5   816.    184.6
G907.   189.6   1013.   190.5   1162.   190.    1310.   190.2   1464.   190.5
G1642.  189.8   1804.   190.1   1982.   189.6   2050.   188.5   2051.   188.45
G2052.  188.4   2074.   186.4   2094.   182.    2130.   176.    2160.   175.6
G2250.  177.    2360.   178.    2425.   178.2   2537.   178.    2659.   182.
G2699.  183.5   2729.   181.6   2794.   182.2   2929.   184.4   2969.   185.8
G3064.  190.3   3073.   190.5   3082.   187.3   3100.   181.96  3160.   170.
G3200.  158.    3250.   155.    3300.   157.9   3370.   156.5   3475.   157.
G3530.  160.4   3555.   158.2   3640.   162.    3800.   163.    3935.   166.
G4110.  167.    4220.   168.    4330.   172.    4430.   175.    4545.   166.1
G4610.  168.    4690.   174.    4800.   176.3   4970.   179.    5100.   180.1
G5144.  181.96  5159.   182.5   5184.   181.96  5216.   177.6   5254.   181.96
G5304.  186.9   5312.   187.8   5332.   185.8   5392.   186.8   5432.   189.0
G5472.  188.0   5502.   189.2   5612.   189.2   5712.   189.0   5867.   188.2
G5947.  189.6   6052.   189.2   6162.   189.4   6259.   187.9   6364.   186.0
G6469.  185.1   6559.   185.1   6659.   185.4   6724.   185.1   6766.   193.0
G6798.  189.5   6816.   188.5   6832.   189.4   6849.   192.4   6864.   193.25
G6940.  192.3   7032.   191.4   7150.   189.6   7270.   185.0   7387.   184.4
G7487.  183.0   7607.   182.0   7702.   181.4   7807.   181.0   7907.   179.4
G7987.  178.7   8092.   179.9   8127.   178.7   8207.   177.7   8267.   177.6
G8312.  178.7   8329.   181.5   8347.   191.6   8357.   191.96  8487.   190.1
G8627.  191.5   8755.   191.5   8883.   191.1   9027.   192.40  9227.   191.2
G9242.  187.0   9329.   185.7   9379.   186.5   9396.   191.0   9409.   185.9
G9484.  185.6   9497.   191.1   9502.   186.8   9594.   186.2   9644.   186.9
G9664.  185.7   9824.   184.3   9864.   188.9   9884.   186.8   9927.   188.9
G10028. 190.3   10101.  195.1   10197.  211.8
A73.3   1.      133.    1.      6.                      1.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C5500.  5500.   5500.   5500.   5500.   5500.
D191.3  191.3
E1.055
E2.1
E3.019  470000. .021    400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
 -1.
```

Figure 4. Program LRD-I input file

are then stored in the master and working header files. This procedure is then repeated until all records in the input file have been processed. An example of this interactivity is as follows:

```
DO YOU WANT TO CREATE NEW DATABASES (Y OR N)?
*Y

ARE YOU INPUTTING BOAT TAPE DATA (TYPE - 1)
                  ALL POINTS DATA(TYPE - 2)
                  BACKWATER DATA (TYPE - 3)
                  CREATE FILE ONLY (TYPE - 4)
                  BOAT TAPE FROM ALLPTS (TYPE - 5)
INPUT YOUR CHOICE?
*1

BOAT TAPE INFORMATION

ENTER INPUT FILE NAME?
*BTDA0979

C0001111010816443060343397000700001642432034231800090000164575503423560012000000
IS THIS 'C' RECORD O.K. Y OR N?
*Y

INPUT THE RANGE FOR THIS DATA (MAX 8-CHAR)

*A72.3

INPUT THE REFERENCE MEAN SEA LEVEL

*150.0

THE X-COORDINATE OF 'A' =  1644306.0
THE Y-COORDINATE OF 'A' =   343397.0
THE X-COORDINATE OF 'B' =  1642432.0
THE Y-COORDINATE OF 'B' =   342318.0
XSTART =  1645755.0
YSTART =   342356.0

S1000000002164372403407480000200000020000000000000000000000000000000000000000000
IS THIS 'S' RECORD O.K. Y OR N?

*Y

XSTOP =  1643724.0
YSTOP =   340748.0

*****************************
PROGRAM IS EXITTED NORMALLY
*****************************

DO YOU WANT TO EXERCISE PLOT OPTIONS (Y OR N)?
*N

*
```

21. All points data base creation. If the user responds with a 2 to the data base selection question (paragraph 19), then this option is selected. The necessary input file name is entered. Then, the following question is asked:

DO YOU WANT TO VIEW ALL CARDS (Y OR N)?

Responding with a Y allows the user to check each and every card in the input. The user is then given the option of declaring the card OK and continuing; retyping the card correctly if not OK and continuing; or

skipping the card and continuing. If a response of N is given to the above question, all cards are read and checked. If a card is not correctly formatted, that particular card is output, and the user is then given the option of typing in the corrected card or skipping it and continuing. The A card is then printed out to the user for each range that is contained in the input file. When all cards have been processed, the data base creation for this selected data base is terminated. The A card information, the creation date, and the record number in the master and working points files where the data for this range are found are stored in the master and working header files. All G cards are then decoded into the actual survey points for this range and stored in the master and working points files. An example of this question and answer sequence is as follows:

```
DO YOU WANT TO CREATE NEW DATABASES (Y OR N)?
*Y

ARE YOU INPUTTING BOAT TAPE DATA (TYPE - 1)
                  ALL POINTS DATA(TYPE - 2)
                  BACKWATER DATA (TYPE - 3)
                  CREATE FILE ONLY (TYPE - 4)
                  BOAT TAPE FROM ALLPTS (TYPE - 5)
INPUT YOUR CHOICE?
*2

ALL POINTS INFORMATION

ENTER INPUT FILE NAME?
*APTRIAL
DO YOU WANT TO VIEW ALL CARDS(Y OR N)?
*N

A72.3   1.      133.    1.      6.

A73.3   1.      133.    1.      6.                      1.

*****************************
PROGRAM IS EXITTED NORMALLY
*****************************

DO YOU WANT TO EXERCISE PLOT OPTIONS (Y OR N)?
*N

$
```

22. Backwater data base creation. A response of 3 to the data base selection question (paragraph 18) identifies this data base creation option. As before, the necessary input file name is entered. The A card is then output, and the user is given the option of correcting or continuing. The header cards (maximum of 10) are read and output to the user for correction. If no corrections are desired, the remaining

G cards are read and decoded into the actual survey points for this range. These points are stored in the master and working points files at the correct record number. The A card information; the creation date; and the record number in the master and working points files where the data for this range are found; and the following 10 cards (B, C, D, E, and F cards) are recorded in the master and working header files. If corrections are to be made to the 10 cards following the A card, the user is then given the option of retyping the corrected card and continuing execution. This procedure is continued until all cards have been processed. An example of this interactivity is as follows:

```
DO YOU WANT TO CREATE NEW DATABASES (Y OR N)?
*Y

ARE YOU INPUTTING BOAT TAPE DATA (TYPE - 1)
                  ALL POINTS DATA(TYPE - 2)
                  BACKWATER DATA (TYPE - 3)
                  CREATE FILE ONLY (TYPE - 4)
                  BOAT TAPE FROM ALLPTS (TYPE - 5)
INPUT YOUR CHOICE?
*3

BACKWATER INFORMATION

ENTER INPUT FILE NAME?
*BUTRIAL

A72.3   1.      133.    1.      6.
IS THIS 'A' CARD O.K. - Y OR N?
*Y
CARD NO.     1
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
CARD NO.     2
C1.     1.      1.      1.      1.      1.
CARD NO.     3
D192.0  192.0
CARD NO.     4
E1.055
CARD NO.     5
E2.1
CARD NO.     6
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
CARD NO.     7
E4.05
CARD NO.     8
E5.055
CARD NO.     9
E6.01
```

```
ANY CHANGES - Y OR N?
*N

A73.3   1.      133.    1.      6.                      1.
IS THIS 'A' CARD O.K. - Y OR N?
*Y
THIS CARD IS NOT CORRECT
CHECK IT CLOSELY
-1.
DO YOU WANT TO INPUT A REVISED CARD?
*N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
*Y
CARD NO.     1
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
CARD NO.     2
C5500.  5500.   5500.   5500.   5500.   5500.
CARD NO.     3
D191.3  191.3
CARD NO.     4
E1.055
CARD NO.     5
E2.1
CARD NO.     6
E3.019  470000. .021    400000. .021    300000. .023    180000. .025    70000.
CARD NO.     7
E4.05
CARD NO.     8
E5.055
CARD NO.     9
E6.01
ANY CHANGES - Y OR N?
*N

**************************
PROGRAM IS EXITTED NORMALLY
**************************

DO YOU WANT TO EXERCISE PLOT OPTIONS (Y OR N)?
*N

$
```

23. Create file only. Responding with a 4 to the data base selection question (paragraph 19) allows the user to create the necessary master and working header and points files for storage of data to be digitized on-line. The files created are for use with boat tape data only.

24. This option was created as a backup to the data base creation from the actual boat tapes. If data cannot be extracted from these tapes, then the user may select this option to create the necessary files for digitizing from a plot which is furnished by the survey boat along with the tape.

25. After this option is selected, the user responds with an input file name. This name must be unique. The program then creates the necessary master and working header and points files using the name

just input. A dummy range number (A card - A000.0) is stored in the two header files, and the first record in the two point files contains all zeros. Execution is then terminated for this option. An example of this is shown below:

```
DO YOU WANT TO CREATE NEW DATABASES (Y OR N)?
*Y

ARE YOU INPUTTING BOAT TAPE DATA (TYPE - 1)
                  ALL POINTS DATA(TYPE - 2)
                  BACKWATER DATA (TYPE - 3)
                  CREATE FILE ONLY (TYPE - 4)
                  BOAT TAPE FROM ALLPTS (TYPE - 5)
INPUT YOUR CHOICE?
*4

CREATE FILE ONLY

INPUT FILE NAME DESIRED
*BMIKE

*****************************
PROGRAM IS EXITTED NORMALLY
*****************************

DO YOU WANT TO EXERCISE PLOT OPTIONS (Y OR N)?
*N

*
```

26. Boat tape from all points data base creation. If the user responds with a 5 to the data base selection question (paragraph 19), then this option is executed. It is executed exactly as the all points data base selection question-and-answer sequence (paragraph 21).

27. This option was incorporated as an additional backup to the other two boat tape data base creation options. If the boat tape cannot be read and no plots are available, or if the user has no digitizing equipment for his plots, then the all points data file can be used to create the master and working header and points files. Each individual range will contain the same survey points in both the all points and boat tape data bases. The user may then access the boat tape data base, select the desired range, and edit these points to correspond to what he assumes to be correct. This will be explained later. An example of the question-and-answer sequence is as follows:

```
DO YOU WANT TO CREATE NEW DATABASES (Y OR N)?
•Y

ARE YOU INPUTTING BOAT TAPE DATA (TYPE - 1)
                   ALL POINTS DATA(TYPE - 2)
                   BACKWATER DATA (TYPE - 3)
                   CREATE FILE ONLY (TYPE - 4)
                   BOAT TAPE FROM ALLPTS (TYPE - 5)
INPUT YOUR CHOICE?
•5

BOAT TAPE FROM ALL POINTS DATA

ENTER INPUT FILE NAME?
•BTTRIAL
DO YOU WANT TO VIEW ALL CARDS(Y OR N)?
•Y

A72.3   1.      133.    1.      6.
IS THE 'A' CARD O.K. Y OR N?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
B2600.  3070.   3900.   5200.   6700.   10197.                                3900.
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
C1.     1.      1.      1.      1.      1.
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
```

```
D192.0  192.0
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E1.055
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E2.1
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E4.05
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E5.055
DO YOU WANT TO INPUT THE REVISED CARD?
•N

DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E6.01
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
```

```
A73.3   1.      133.    1.      6.                      1.
IS THE 'A' CARD O.K. Y OR N?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
C5500.  5500.   5500.   5500.   5500.   5500.
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
D191.3  191.3
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E1.055
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E2.1
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E3.019  470000. .021    400000. .021    300000. .023    180000. .025    70000.
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E4.05
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E5.055
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
E6.01
DO YOU WANT TO INPUT THE REVISED CARD?
•N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
•Y
```

```
THIS CARD IS NOT AN 'A' OR 'G' CARD.
CHECK IT CLOSELY.
-1.
DO YOU WANT TO INPUT THE REVISED CARD?
-N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
-Y

**************************
PROGRAM IS EXITTED NORMALLY
**************************

DO YOU WANT TO EXERCISE PLOT OPTIONS (Y OR N)?
-N

*
```

Output file structure

28. All output files are structured in the following manner:

a. The input file name used to create the desired data base is retained. For example,

FNAME

b. Twelve subcatalogs are created to reflect the working and master header and points files for each of the three data bases created:

(1) MHBOAT--master boat tape header file
MPBOAT--master boat tape points file
WHBOAT--working boat tape header file
WPBOAT--working boat tape points file

(2) MHBACK--master backwater header file
MPBACK--master backwater points file
WHBACK--working backwater header file
WPBACK--working backwater points file

(3) MHALLL--master all points header file
MPALLL--master all points points file
WHALLL--working all points header file
WPALLL--working all points points file

c. A master catalog is created to insure that all data base creation and updating will be stored in an easily accessible place under the USER ID number. This catalog is entitled "LROCK."

29. Thus, for example, if the user is creating a boat tape data base with input file FNAME, the file structure of the working and master header and points files is as follows:

a. LROCK/MHBOAT/FNAME (master boat tape header file).

b. LROCK/MPBOAT/FNAME (master boat tape points file).

c. LROCK/WHBOAT/FNAME (working boat tape header file).

d. LROCK/WPBOAT/FNAME (working boat tape points file).

30. Examples of each type of input file and of the working and master header and points file created from each input file are given in Appendix A.

Display Option

31. The plot options may be exercised in one of two ways. First, if the user responds with an N to the question

DO YOU WANT TO CREATE NEW DATA BASES:

he invokes the display portion of the code. If he responds with a Y to the above question, the question

DO YOU WANT TO EXERCISE PLOT OPTIONS?

is output at the end of the data base creation sequence. A reply of Y invokes the plot options. An N reply terminates execution.

32. If the display option is invoked, a title is output to the user. The user then inputs the baud rate (300 or 1200). Next, all necessary input files are entered. These input files must have already been created in the data base creation level. Their file names must be entered exactly as they were entered when created. If the user types in an erroneous file name, a message is output specifying which file cannot be attached. The user is then given the option of trying again or terminating the run. If the user only wants to attach one or two sets of files instead of the three given, he may just type a carriage return when that particular question appears. For example, suppose the user wants to work with his backwater data base only. When the questions are asked to input the all points file name and the boat tape file name, a carriage return is then entered. If all files are attached successfully, a message is printed to the user stating such. An example of this is shown below:

```
****************************************

PLOT PROGRAM FOR LITTLE ROCK DISTRICT

****************************************

INPUT THE BAUD RATE YOU ARE USING
TYPE IN EITHER 300 OR 1200?
*1200
ENTER ALL POINTS FILE NAME
*APTRIAL

ENTER BACKWATER FILE NAME
*BWTRIAL

ENTER BOATTAPE FILE NAME
*BTTRIAL

ALL FILES ATTACHED!!.
```

Selecting a Range

33. The user is now ready to select a range to be displayed. The program responds with a series of questions to the user asking whether or not the list of ranges is to be printed from the working header files. With a response of Y, a bell will ring, and execution of the program is temporarily halted. At this point, the user may take a hardcopy. To resume execution of the program, the user hits a carriage return. The screen is erased and the corresponding lists are printed. After all lists are printed, the program responds with the following prompt:

SELECT A RANGE TO BE DISPLAYED

The user then enters a range number. If the range does not exist in any of the working header files attached, a message is output stating such. The user is then given the opportunity to select a different range.

34. A response of N to all list questions leads directly to the range selection question.

35. After a range is selected, the screen is erased and the main menu set of options is displayed. These will be discussed in the next section.

36. An example of the range selection question-and-answer sequence is shown on the next page:

SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
*YES

BOAT TAPE HEADER FILE

RANGE	DATE CREATED	DATE CHANGED
A72.3	01/15/80	01/15/80
A73.3	01/15/80	01/15/80

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
*YES

ALLPOINTS HEADER FILE

RANGE	DATE CREATED	DATE CHANGED
A72.3	01/15/80	01/15/80
A73.3	01/15/80	01/15/80

DO YOU WANT TO LIST THE WORKING BACKWATER HEADER FILE?
*YES

BACKWATER HEADER FILE

RANGE	DATE CREATED	DATE CHANGED
A72.3	01/15/80	01/15/80
A73.3	01/15/80	01/15/80

SELECT A RANGE TO BE DISPLAYED
*A72.3
BOAT TAPE
RANGE A72.3 WAS CREATED 01/15/80 AND LAST CHANGED 01/15/80
ALL POINTS
RANGE A72.3 WAS CREATED 01/15/80 AND LAST CHANGED 01/15/80
BACKWATER
RANGE A72.3 WAS CREATED 01/15/80 AND LAST CHANGED 01/15/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
*

Main Menu

37. The Main Menu contains the initial set of options for the display portion of the code. After the screen is erased, a "menu board" is displayed and the "cross hairs" appear. Figure 5 gives an example of this.

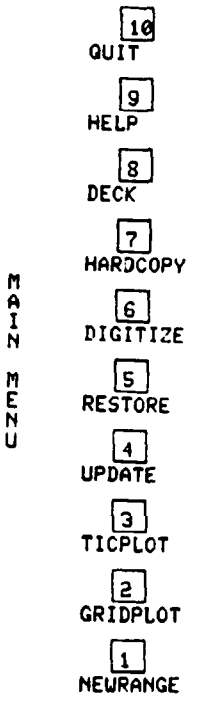


Figure 5. Main Menu options

38. The user then moves the horizontal cross hair to the desired box and enters any character and a carriage return. That particular option is then executed. If the user fails to place the horizontal cross hair in one of the boxes, a message is output to the user stating that a mistake has been made and instructing him to try again.

39. It is very important that the user understand how to manipulate the cross hairs. On the right-hand side of the Tektronix 4014 terminal are two "thumb wheels." One of the wheels controls the vertical movement of the cross hairs, and the other controls the horizontal

movement. The user moves the thumb wheels to the desired position, which is the intersection of the two cross hairs, by moving the wheels freely up or down, left or right.

Main Menu option 1: NEWRANGE

40. If the user wishes to select a different range, he may position the horizontal cross hair to box number 1, enter any character, and type a carriage return. The screen is erased, and the exact same sequence as was discussed in the previous section (paragraphs 33-36) is repeated. An example of this is as follows:

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
*NO

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
*NO

DO YOU WANT TO LIST THE WORKING BACKWATER HEADER FILE?
*NO

SELECT A RANGE TO BE DISPLAYED
*A72.3
BOAT TAPE
RANGE A72.3    WAS CREATED 01/15/80 AND LAST CHANGED 01/15/80
ALL POINTS
RANGE A72.3    WAS CREATED 01/15/80 AND LAST CHANGED 01/15/80
BACKWATER
RANGE A72.3    WAS CREATED 01/15/80 AND LAST CHANGED 01/15/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
*NO
```

After the range has been selected, the screen is erased and the Main Menu is output again.

Main Menu option 2: GRIDPLOT

41. After a particular range has been selected, the user may choose to use a grid axis for display. By placing the horizontal cross hair in box number 2 and entering any character and a carriage return, a grid axis plot is selected. The screen is erased and the Plot Menu will appear. These options will be explained later. An example of a grid axis plot is shown in Figure 6.

Main Menu option 3: TICPLOT

42. By placing the horizontal cross hair in box number 3 and entering any character and a carriage return, a tic axis plot is

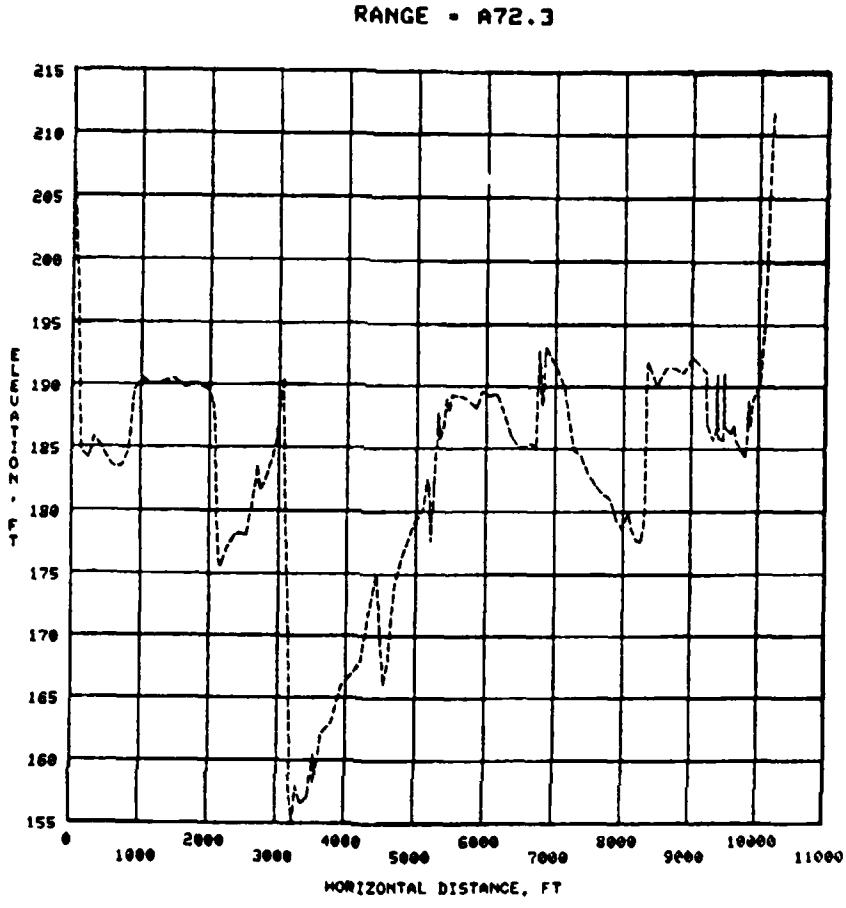


Figure 6. Grid axis example plot

selected. The screen is again erased and the Plot Menu options are output. As was stated before, these options will be explained later. An example of a tic axis plot is shown in Figure 7.

Main Menu option 4: UPDATE

43. The user may desire to update the working header and points files for a particular range. This can be done by placing the horizontal cross hair in box number 4 and entering any character and a carriage return. The user may choose which data base is to be updated. First, the all points working files are presented for updating purposes. Answering Y yields the following:

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
*YES

ALLPTS FILES UPDATED FOR RANGE A72.3
```

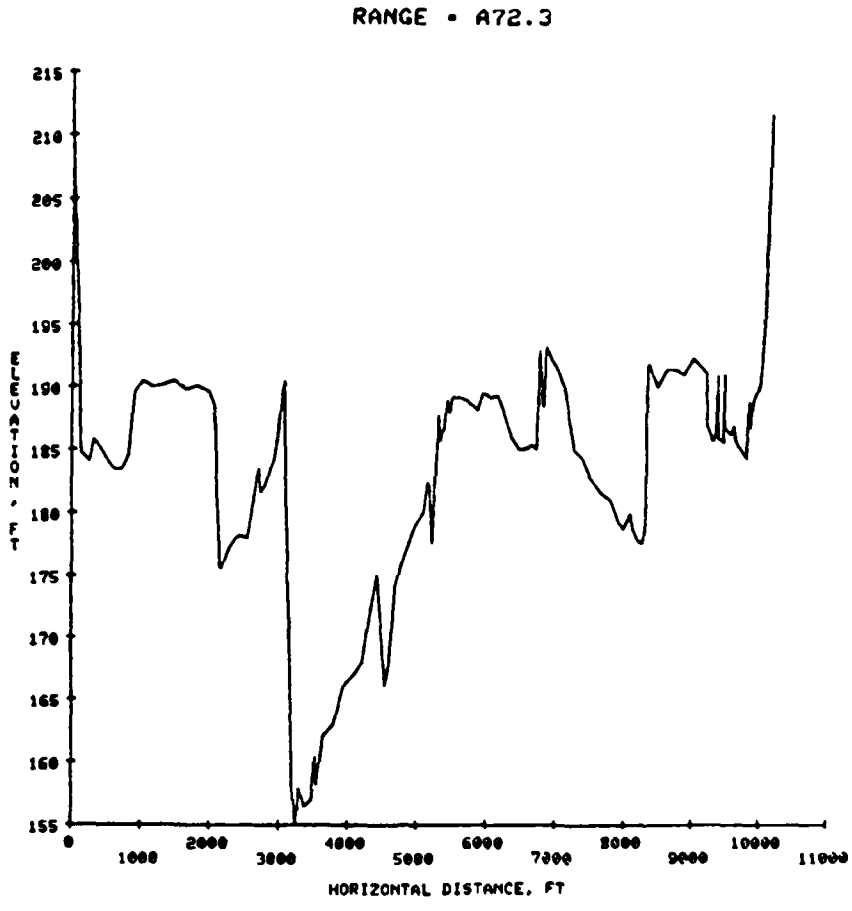


Figure 7. Tic axis example plot

44. Next, the backwater working data bases can be updated. If a Y response is given, the user is allowed to modify any of the header cards stored for this range in the backwater header files. Each card is displayed, and the user is given an opportunity to change each card. An example of this interactivity is shown on the next page:

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BACKWATER PTS AND HEADER
FILES?
*YES



CARD  1
A72.3   1.          133.1.      6.                      E
ANY CHANGES?
*
CARD  2
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
ANY CHANGES?
*
CARD  3
C1.     1.      1.      1.      1.      1.
ANY CHANGES?
*
CARD  4
D192.0  192.0
ANY CHANGES?
*
CARD  5
E1.055
ANY CHANGES?
*




CARD  6
E2.1
ANY CHANGES?
*
CARD  7
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
ANY CHANGES?
*
CARD  8
E4.05
ANY CHANGES?
*
CARD  9
E5.055
ANY CHANGES?
*


 CARD 10
 E6.01
 ANY CHANGES?
 *
 CARD 11

 ANY CHANGES?
 *
 CARD 12

 ANY CHANGES?
 *

 BACKWATER FILES UPDATED FOR RANGE A72.3
```

45. Finally, the boat tape working data bases can be updated. Responding with N results in the following question-and-answer sequence:

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BOATTAPE PTS AND
HEADER FILES?
*NO
```

A Y response results in a sequence similar to that for the all points data base update sequence as was discussed in paragraph 43.

46. At the end of all updating, the screen is erased and control is transferred back to the Main Menu.

Main Menu option 5: RESTORE

47. At some point, it may be necessary to restore the original data points in the range selected. This restore can occur from either the working or master header and points files for a particular range. By placing the horizontal cross hair in box number 5 and entering a character and a carriage return, the user selects the Restore Menu. These options will be discussed later.

Main Menu option 6: DIGITIZE

48. This option allows the user to extract individual points from an (X,Y) plot and store this information into the boat tape working header and points files for the range selected. This option was incorporated as a backup to the magnetic tape in case data could not be read easily from the tape.

49. In order to execute this option, the user must place the (X,Y) plot on his tablet (either a Tektronix 4953 or a Tektronix 4954) making sure it is firmly in place. Then the user places the horizontal cross hair in box number 6 and enters any character and a carriage return. The screen is erased and the following set of instructions is displayed:

```
THIS ROUTINE ALLOWS YOU TO ENTER BOAT TAPE
INFORMATION FROM THE BOAT PLOTS AS A
BACKUP TO THE BOAT TAPES. YOU MAY DIGITIZE
AS MANY AS 300 POINTS. MAKE SURE YOUR PLOT
IS FIRMLY IN PLACE ON THE TABLET.
ENTER 1 POINT EVERYTIME THE BELL RINGS.
DIGITIZE THE BASE POINT

*** THE USER NOW DIGITIZES THE LOWER LEFT CORNER OF HIS PLOT ***

ENTER THE BASE STATION (FT) AND ELEVATION (FT)
•0,100    *** THESE ARE THE X,Y COORDINATES OF THE BASE POINT ***

WHAT KIND OF TABLET ARE YOU USING?
TYPE (1) FOR SMALL TABLET.
TYPE (2) FOR LARGE TABLET.

•1    *** THE USER SPECIFIES THAT HE IS USING THE TEKTRONIX 4953 TABLET ***
      *** IF A '2' WAS ENTERED, THE USER HAS SELECTED THE TEKTRONIX 4954 TABLET
 ***   THE BELL WILL RING TO SIGNIFY THE BEGINNING OF HIS DIGITIZING ACTIVITY ***
 ***   THE USER NOW DIGITIZES ALL THE POINTS ON THE DESIRED CURVE (MAXIMUM OF
       300 POINTS).  THE CHARACTER 'E' IS THEN ENTERED FROM THE KEYBOARD. ***

THIS INFO CAN BE UPDATED BY CALLING
THE 'UPDATE' OPTION IN THE MAIN MENU.
NOW DIGITIZE THE POINTS ON THE CURVE.
EVERYTIME THE BELL RINGS, DIGITIZE ONE POINT.
WHEN YOU ARE READY TO TERMINATE, HIT THE
CHARACTER 'E' ON THE KEYBOARD AFTER THE BELL.
```

50. In Figure 8, the base point is point A (0,100). The user then moves the "mouse" to each desired point and hits the enter button

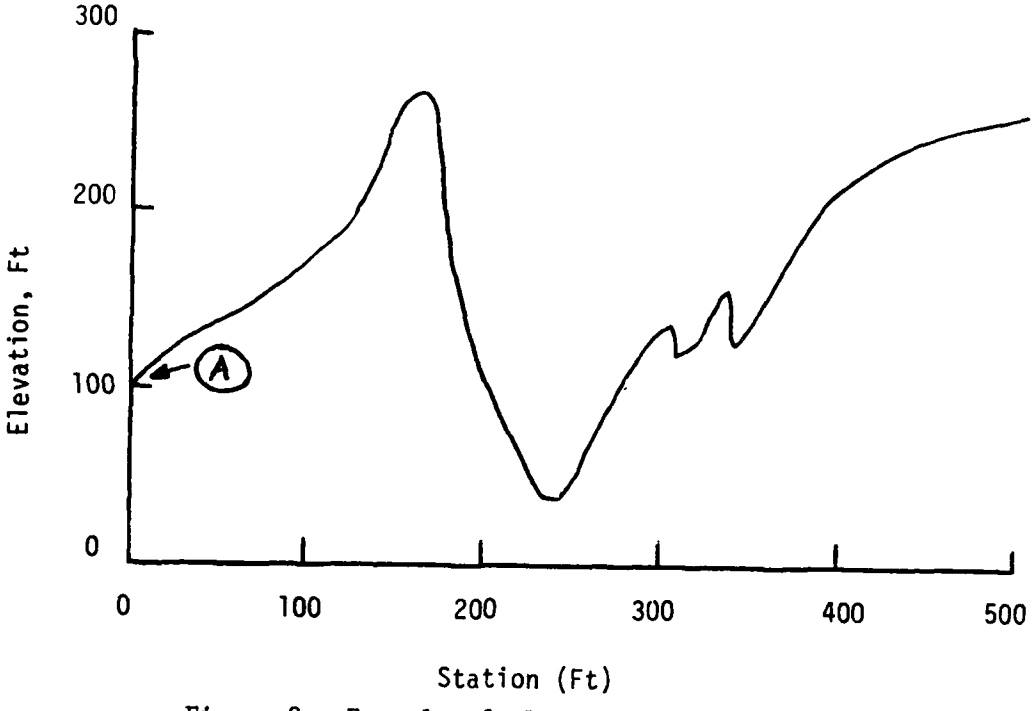


Figure 8. Example of plot used for digitizing

on the "mouse." These (X,Y) coordinates are stored in each individual station-elevation point for the range selected for boat tape data only. As many as 300 points can be digitized. To terminate this procedure, simply move to the keyboard and enter the character E. These data are now locally stored in the station-elevation points for boat tape data for the range selected only. The data are not stored in any working or master header or points files. In order to permanently place this information in a working or master boat tape data base, the update option must be executed. This can be done by returning to the main menu and executing option 4.

Main Menu option 7: HARDCOPY

51. It may be essential to the user to display the master points file versus the working points file for a particular range. The user can then compare his current range values against his original values. This option is available for either the all points or the backwater data bases. This information can be displayed either on the screen or on the Tektronix 4663 pen-plotter. To execute this option, simply place the horizontal cross hair in box number 7 and enter any character and a carriage return. The screen is erased and the following sequence is executed:

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.
```

52. At this point the cross hairs appear. The user then keys in either an A or a B. For this example, the user keys in a B:

```
BACKWATER DATA SELECTED
```

53. The plot is standard scaled. One inch* in the vertical direction equals 10 ft. One inch in the horizontal direction equals 200 ft.

---

* A table of factors for converting inch-pound units of measurement to metric (SI) units is presented on page 3.

The plot is always 10 in. vertical and 15 in. horizontal. The user then enters the starting station value (X coordinate) and the starting elevation value (Y coordinate). A selection is then made as to whether or not the screen or the pen-plotter is to be used:

```
ENTER STARTING STATION VALUE (FT)?
•0
ENTER STARTING ELEVATION VALUE (FT)?
•150
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
•2
```

54. If the plotter is selected, the bell will ring and execution is temporarily suspended. This is done to give the user the necessary time to place the paper on the plotter, zero the right and left positions, and check that the plotter is in the on-line mode. When the user is satisfied the plotter is ready, a carriage return is entered from the keyboard and execution is resumed.

55. If the screen is selected, the screen will be erased and the picture will be plotted.

56. In either case, a bell will ring and execution will be temporarily halted at the end of the plot.

57. In this particular example, the screen is selected with the starting station value equal to 0 ft and the starting elevation value equal to 150 ft. The screen is erased and Figure 9 shows the resulting plot.

58. In this particular case, the working and master files were identical.

59. The user is then given the opportunity to make another plot by responding to the following question with a Y or an N:

```
DO YOU WANT ANOTHER PLOT (Y OR N)?
•N
```

In this example, no extra plots are desired. Control is then transferred back to the Main Menu.

Main Menu option 8: DECK

60. After changes have been made to the backwater data bases, the user may desire to create a card deck image of the new range data to be used in program LRD-I. This can be done by moving the horizontal cross

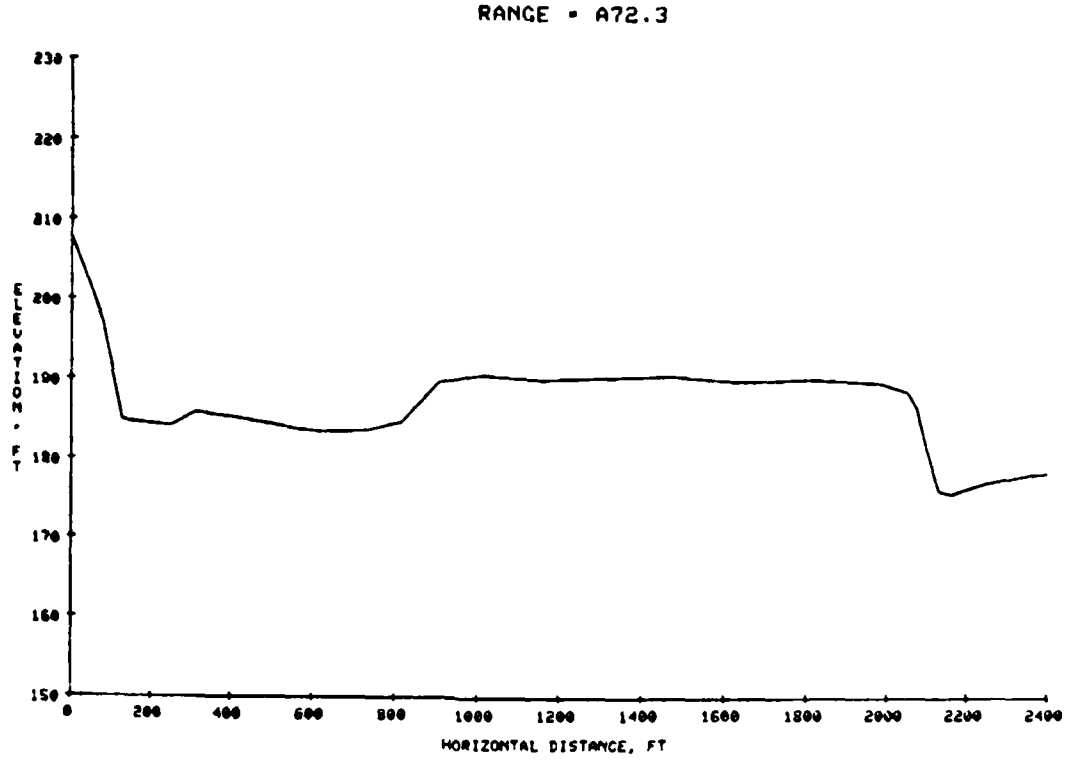


Figure 9. Hard copy example plot

hair to box number 8 and entering any character and a carriage return. The screen is erased and the following message is output:

```
THIS ROUTINE ALLOWS THE USER TO CREATE A DECK
IMAGE FOR THIS POOL TO BE USED IN T. THOMAS' PROGRAM.
ALL CARD IMAGES WILL BE STORED IN A FILE.
ONLY ONE POOL WILL BE STORED AT ANY ONE GIVEN TIME.
INPUT FILE NAME
*UM
```

Input file name UM must be unique and must not already have been created. Upon completion of this option, the following message is output:

```
DECK HAS BEEN CREATED FOR THIS POOL.
```

The bell will ring and execution will be temporarily halted. To resume execution, simply enter a carriage return. The following contains information written to file UM:

```
      1       0       1       0       0       0       0       0       0       0
*POOL NO. 3 (BACKWATER INPUT FILE)
*   FEB 1978
*PROGRAM NO. 722-M4-05B
*%CHANNEL PORTIONS WERE SURVEYED BEFORE THE 10 DEC 71 FLOOD
*THE OVERBANK PORTIONS WERE SURVEYED AFTER THE 10DEC 71 FLOOD]
Q1.     70000.  100000. 150000. 180000. 230000. 300000. 350000. 400000. 470000.
R182.0  182.0   182.0   182.0   182.0   183.2   185.4   186.7   188.0   189.6
P0.1    .00015


A72.3   1.          133.1.      6.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C1.     1.      1.      1.      1.      1.
D192.0  192.0
E1.055
E2.1
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
G    0.    207.7    79.0   197.1   128.0   184.8   249.0   184.1   313.0   185.8
G  418.0   185.1   568.0   183.7   628.0   183.4   723.0   183.5   816.0   184.6
G  907.0   189.6  1013.0   190.5  1162.0   190.0  1310.0   190.2  1464.0   190.5
G 1642.0   189.8  1804.0   190.1  1982.0   189.6  2050.0   188.5  2051.0   188.5
G 2052.0   188.4  2074.0   186.4  2094.0   182.0  2130.0   176.0  2160.0   175.6
G 2250.0   177.0  2360.0   178.0  2425.0   178.2  2537.0   178.0  2659.0   182.0
G 2699.0   183.5  2729.0   181.6  2794.0   182.2  2929.0   184.4  2969.0   185.8
G 3064.0   190.3  3073.0   190.5  3082.0   187.3  3100.0   182.0  3160.0   170.0
G 3200.0   158.0  3250.0   155.0  3300.0   157.9  3370.0   156.5  3475.0   157.0
G 3530.0   160.4  3555.0   158.2  3640.0   162.0  3800.0   163.0  3935.0   166.0
G 4110.0   167.0  4220.0   168.0  4330.0   172.0  4430.0   175.0  4545.0   166.1
G 4610.0   168.0  4690.0   174.0  4800.0   176.3  4970.0   179.0  5100.0   180.1
G 5144.0   182.0  5159.0   182.5  5184.0   182.0  5216.0   177.6  5254.0   182.0
G 5304.0   186.9  5312.0   187.8  5332.0   185.8  5392.0   186.8  5432.0   189.0
G 5472.0   188.0  5502.0   189.2  5612.0   189.2  5712.0   189.0  5867.0   188.2
G 5947.0   189.6  6052.0   189.2  6162.0   189.4  6259.0   187.9  6364.0   186.0
G 6469.0   185.1  6559.0   185.1  6659.0   185.4  6724.0   185.1  6766.0   193.0
G 6798.0   189.5  6816.0   188.5  6832.0   189.4  6849.0   192.4  6864.0   193.3
G 6940.0   192.3  7032.0   191.4  7150.0   189.6  7270.0   185.0  7387.0   184.4
G 7487.0   183.0  7607.0   182.0  7702.0   181.4  7807.0   181.0  7907.0   179.4
G 7987.0   178.7  8092.0   179.9  8127.0   178.7  8207.0   177.7  8267.0   177.6
G 8312.0   178.7  8329.0   181.5  8347.0   191.6  8357.0   192.0  8487.0   190.1
G 8627.0   191.5  8755.0   191.5  8883.0   191.1  9027.0   192.4  9227.0   191.2
G 9242.0   187.0  9329.0   185.7  9379.0   186.5  9396.0   191.0  9409.0   185.9
G 9484.0   185.6  9497.0   191.1  9502.0   186.8  9594.0   186.2  9644.0   186.9
G 9664.0   185.7  9824.0   184.3  9864.0   188.9  9884.0   186.8  9927.0   188.9
G10028.0   190.3 10101.0   195.1 10197.0   211.8
A73.3   1.          133.    1.      6.                      1.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C5500.  5500.   5500.   5500.   5500.   5500.
D191.3  191.3
E1.055
E2.1
E3.019  470000. .021    400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
  -1.
```

Main Menu option 9: HELP

61. If the user is not familiar with the options for the Main Menu, he may obtain a short explanation of each option by selecting this option. To invoke this option, simply place the horizontal cross hair in box number 9 and enter any character and a carriage return. The screen is erased and the following information is output:

```
MAIN MENU OPTIONS

HERE IS A DESCRIPTION OF ALL OPTIONS
THAT MAY BE CHOSEN BY THE USER.

OPTION        DESCRIPTION
------        -----------
   1          SELECT A NEW RANGE TO BE DISPLAYED
   2          PLOT DATA USING GRIDAXES
   3          PLOT DATA USING TICAXES
   4          UPDATE INFO INTO WORKING DATA BASE FILES
   5          RESTORES ORIGINAL POINTS AFTER ALL UPDATES
   6          DIGITIZE INFO FROM BOAT PLOT
   7          GENERATES TEKTRONIX 4663 PLOT
   8          GENERATES DECK FOR BACKWATER PROGRAM.
   9          PRINTS THIS INFO AGAIN TO HELP THE USER.
  10          TERMINATES THE PROGRAM
```

To resume execution of the program, simply enter a carriage return.

Main Menu option 10: QUIT

62. To exit the program normally, simply place the horizontal cross hair in box number 10 and enter any character and a carriage return. The screen is erased and the following message is output.

```
PROGRAM IS EXITTED
```

Restore Menu

63. The Restore Menu provides the user with a backup if his data have been damaged or lost for a particular range. This set of options is invoked by selecting option 5 from the Main Menu. If this option is selected, the screen is erased; Figure 10 shows the resulting menu board. To access any of the options, move the horizontal cross hair to the desired box and enter any character and a carriage return. If the user fails to place the horizontal cross hair in one of the boxes,

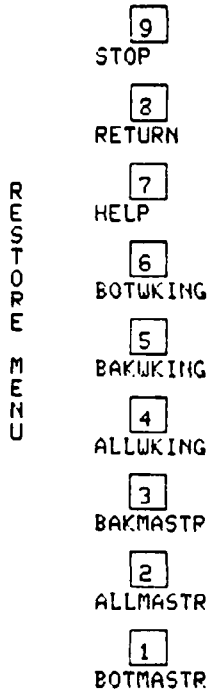


Figure 10. Restore Menu options

a message is output stating that a mistake has been made and instructing him to try again.

Restore Menu option 1: BOTMASTR

64. This option provides a backup to the user's boat tape information for the particular range selected. It restores the original data points for that range only from the master points file and places a copy of this information in the working points file. This feature allows the user to reestablish the original data base if the working data base is unsatisfactory. If a successful restore has been made, the following message will be written on the right-hand side of the screen:

BOAT MASTER RESTORED

If the range selected was not included in the original data base, then obviously no restore can be made. The following message will be written:

RANGE NOT FOUND ON BOAT MASTER.

The cross hairs will reappear, ready for the next selection.

Restore Menu option 2: ALLMASTR

65. This option provides a backup to the user's all points information for the particular range selected. It restores the original data points for that range only from the master points file and places a copy of this information in the working points file. If a successful restore has been made, the following message will be output:

ALLPTS MAS. & WKG RESTORED

If the range selected was not included in the original data base, then the following message will be output to alert the user that no restore can be made:

RANGE NOT FOUND ON ALLPTS MASTER.

The cross hairs will reappear, ready for the next selection.

Restore Menu option 3: BAKMASTR

66. This option provides a backup to the user's backwater information for the particular range selected. The original points can be restored from the master points file to reestablish the original data base. If a successful restore was made, the following message will be output:

BACKWATER MAS. & WKG. RESTORED

If the range selected was not included in the original data bases, then the following message will appear to alert the user that no restore can be made:

RANGE NOT FOUND ON BAK MASTER

The cross hairs will again appear for the user to select another option.

Restore Menu option 4: ALLWKING

67. If the user has been editing a range and discovers that he has made a mistake, he may wish to restore the original points that he

began with for that range. These points may not necessarily contain the original points stored in the master points file. The user can restore from the working points file to reinitialize the set of points that he started with. This option performs that function. If successful, the following message will be output:

ALLPTS WORKING RESTORED

If the range is not included in the working data base, the following is output:

RANGE NOT FOUND ON ALLPTS WKG FILE

The cross hairs will reappear for another selection to be made.

Restore Menu option 5: BAKWKING

68. The user can select this option to restore from the working backwater points file for the particular range selected. If successful, the following message is output:

BACKWATER WKG RESTORED

If unsuccessful, the user will see the following message:

RANGE NOT FOUND ON BAK WKG FILE

The cross hairs will reappear for another selection to be made.

Restore Menu option 6: BOTWKING

69. The user can select this option to restore from the working boat tape points file for a particular range selected. If successful, the following message is output:

BOAT WORKING RESTORED

If unsuccessful, the user will see the following message:

RANGE NOT FOUND ON BOAT WKG FILE

The cross hairs will again appear for another selection.

Restore Menu option 7: HELP

70. If the user is not familiar with the options for the Restore

Menu, a short explanation of each option can be given by selecting this option. The screen is erased and the following information is output:

```
RESTORE MENU OPTIONS

HERE IS A DESCRIPTION OF ALL OPTIONS
THAT MAY BE CHOSEN BY THE USER.

OPTION     DESCRIPTION
------     -----------
  1        RESTORES ORIGINAL POINTS FROM THE
           MASTER BOAT TAPE FILE, COPIES THE POINTS INTO
           THE WORKING BOAT POINTS FILE FOR THIS RANGE ONLY
  2        RESTORES ORIGINAL POINTS FROM THE
           MASTER ALL PTS FILE, COPIES THE POINTS INTO
           THE WORKING ALL PTS FILE FOR THIS RANGE ONLY
  3        RESTORES ORIGINAL POINTS FROM THE
           MASTER BACKWATER FILE, COPIES THE POINTS INTO
           THE WORKING BACK WATER FILE FOR THIS RANGE ONLY
  4        RESTORES ORIGINAL POINTS FROM THE
           WORKING ALLPTS FILE FOR THIS RANGE ONLY
  5        RESTORES ORIGINAL POINTS FROM THE
           WORKING BACKWATER FILE FOR THIS RANGE ONLY
  6        RESTORES ORIGINAL POINTS FROM THE
           WORKING BOATTAPE FILE FOR THIS RANGE ONLY
  7        PRINTS THIS INFO AGAIN TO HELP THE USER
  8        RETURNS TO MAIN MENU
  9        TERMINATES THE PROGRAM
```

To resume execution of the program, simply enter a carriage return.

Restore Menu option 8: RETURN

71. This option allows the user to return to the Main Menu.

Restore Menu option 9: STOP

72. The user may terminate execution of the program by selecting this option.

Plot Menu

73. The Plot Menu displays the selected data bases for the range selected. This menu is invoked initially by selecting the GRIDPLOT or TICPLOT option in the Main Menu. After either of these options has been chosen, the screen is erased; Figure 11 shows the resulting menu board:

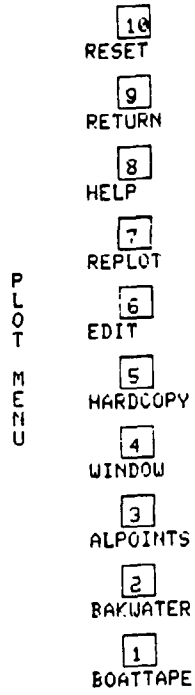


Figure 11. Plot Menu options

Again, to access any option, position the horizontal cross hair in the desired box and enter any character and a carriage return. If the user fails to place the horizontal cross hair in one of the boxes, a message is output stating that a mistake has been made and instructing him to try again.

Plot Menu option 1: BOATTAPE

74. If the range selected is found in the boat tape file attached, the range is plotted on the screen as a dotted line. If the all points or backwater curves have already been displayed, the same scales are used and the boat tape data are plotted on the same graph. To plot the boat tape data first, hit the reset option (discussed later). Then if the boat tape option is selected, the curve will appear first, automatically selecting suitable scales. If no boat tape file has been attached and this option is selected, no plot can be displayed. Control is transferred back to the Plot Menu for another selection. Figure 12 gives an example of a boat tape plot done first.

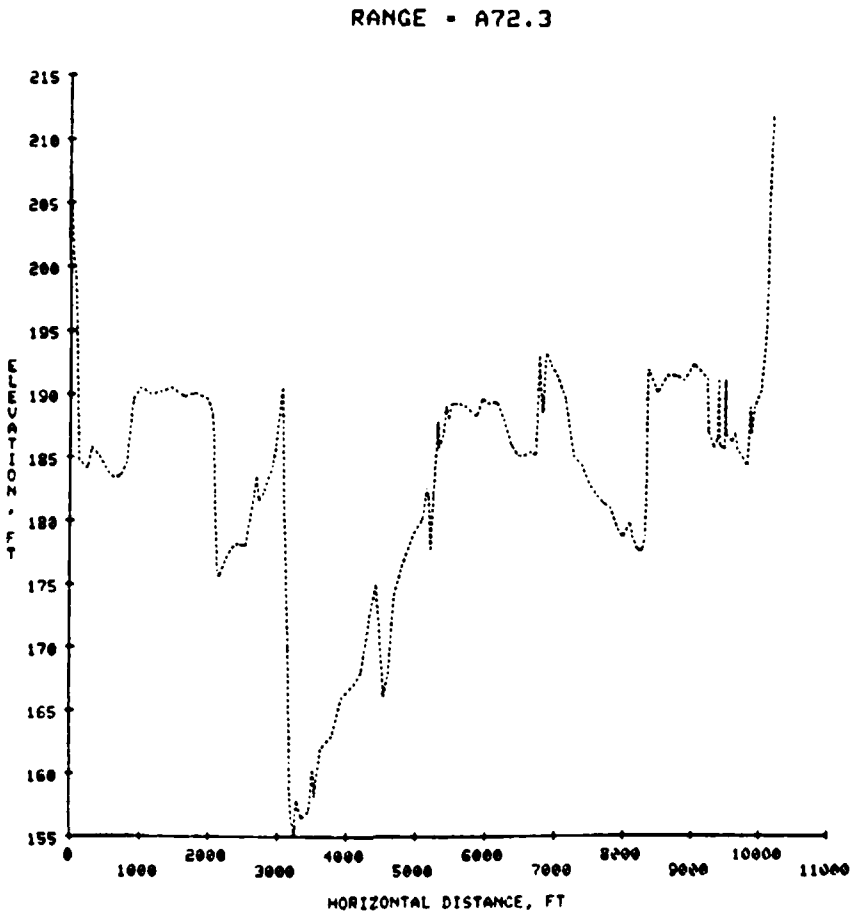


Figure 12. Boat tape example plot

Plot Menu option 2: BAKWATER

75. If the range selected is found in the backwater file attached, the range is plotted on the screen as a dashed line. If the all points or boat tape curves have already been displayed, the same scales are used and the backwater data are plotted on the same graph. To plot the backwater first, hit the reset option. Then if the backwater option is selected, the curve will appear first, automatically selecting suitable scales. If no backwater file has been attached and this option is selected, no plot will be displayed. Control is then transferred back to the Plot Menu for another selection. Figure 13 gives an example of a backwater plot done first.

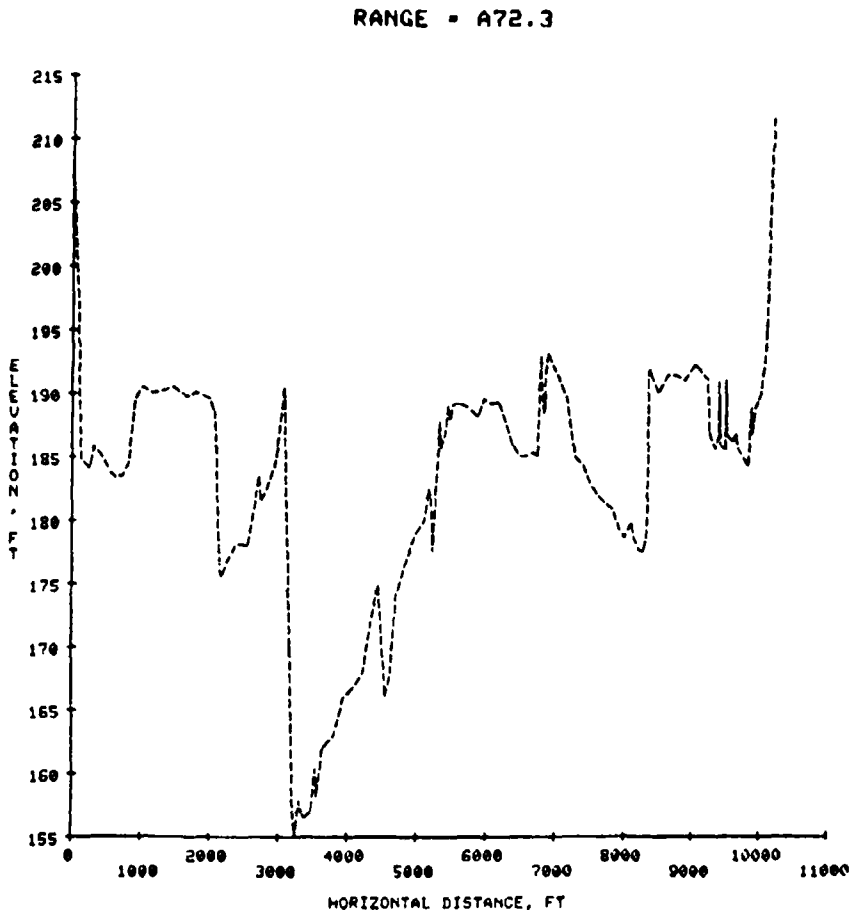


Figure 13. Backwater example plot

Plot Menu option 3: ALPOINTS

76. If the range selected is found in the all points file attached, the range is plotted on the screen as a solid line. If the boat tape or backwater curves have already been displayed, the same scales are used and the all points data are plotted on the same graph. To plot the all points first, hit the reset option. Then if the all points option is selected, the curve will appear first, automatically selecting suitable scales. If no all points file has been attached and this option is selected, no plot will be displayed. Control is then transferred back to the Plot Menu for another selection. Figure 14 gives an example of an all points plot done first.

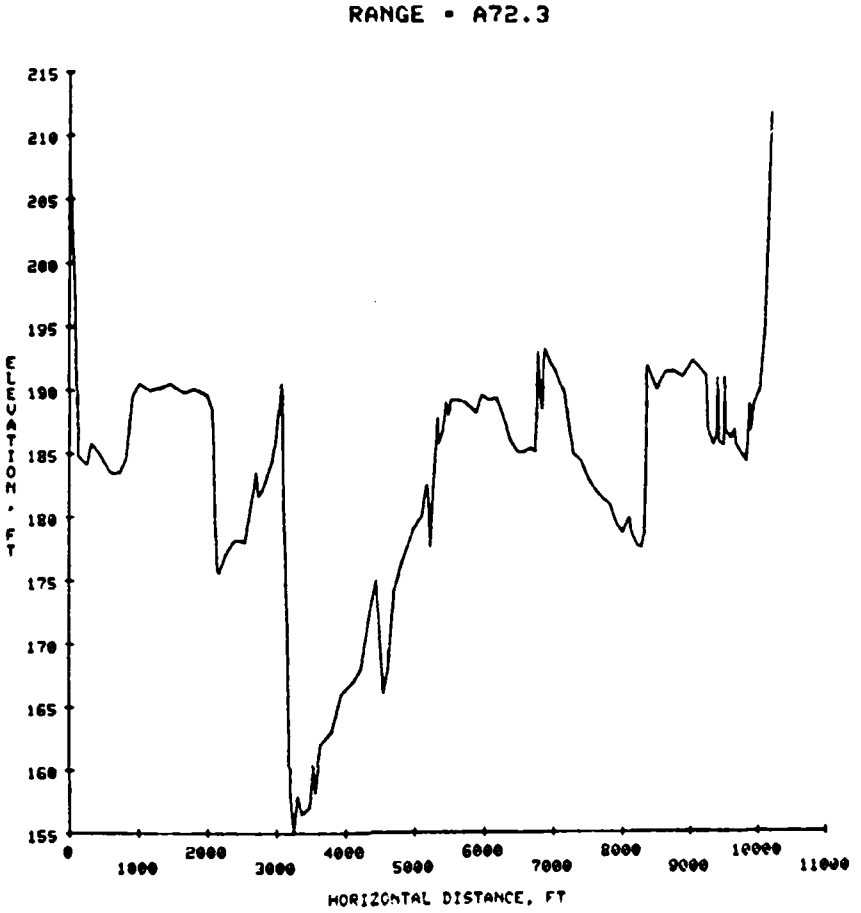


Figure 14. All points example plot

Plot Menu option 4: WINDOW

77. This option allows the user to view the plot just displayed with the user's own scales. The user can select the default scale factors (200 ft in the X direction, 10 ft in the Y direction) or choose his own scale factors. If the user declines to use the default scale factors, he must enter a starting and ending station value and a starting and ending elevation value. Then, he must give a tic interval in the X and Y directions. The screen is then erased and the subsequent plot is displayed using the user's scale factors. To replot the curve using the original scale factors, the user must first select the reset option and then the appropriate option to plot the backwater, all points,

or boat tape data. Figure 15 shows an example of using the default scale factors. The starting and ending X values are 0 and 1000. The starting and ending Y values are 150 and 220. Figure 16 shows an example of the user specifying his own scales. The X-scale factor is 250 ft

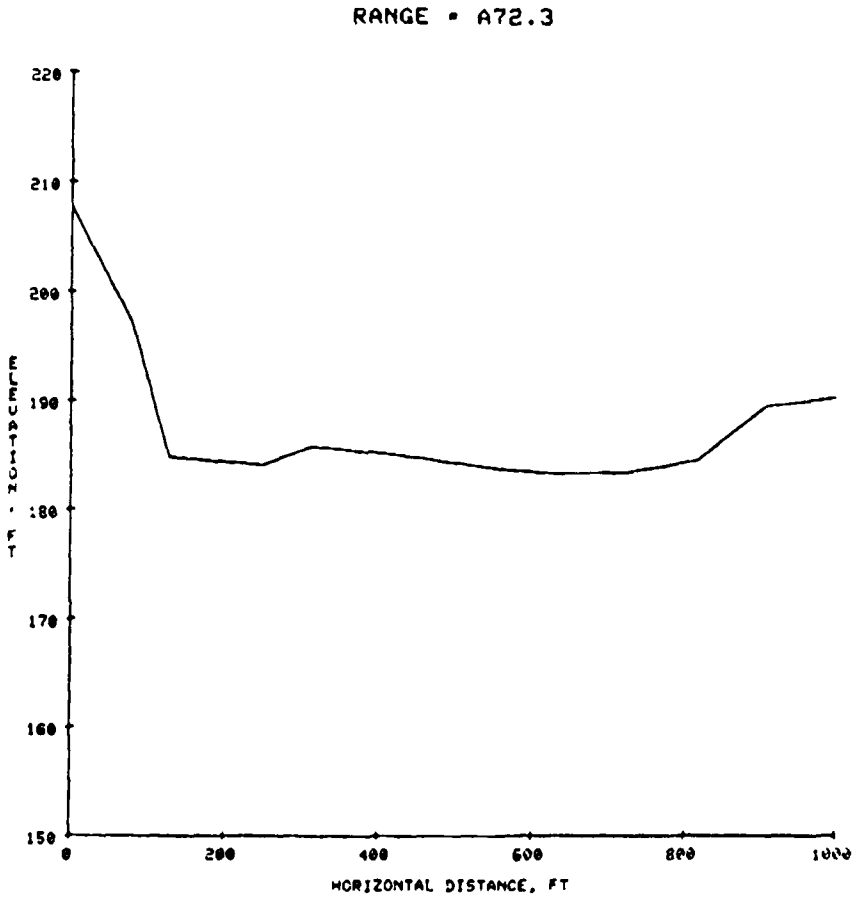


Figure 15. Window option example plot using default scale factors

and the Y-scale factor is 20 ft. The starting and ending X values are 0 and 1000. The starting and ending Y values are 150 and 220.

Plot Menu option 5: HARDCOPY

78. This option is the same as Main Menu option 7 discussed earlier in paragraphs 51-59. Placing this option here gives the user an additional place to exercise this capability.

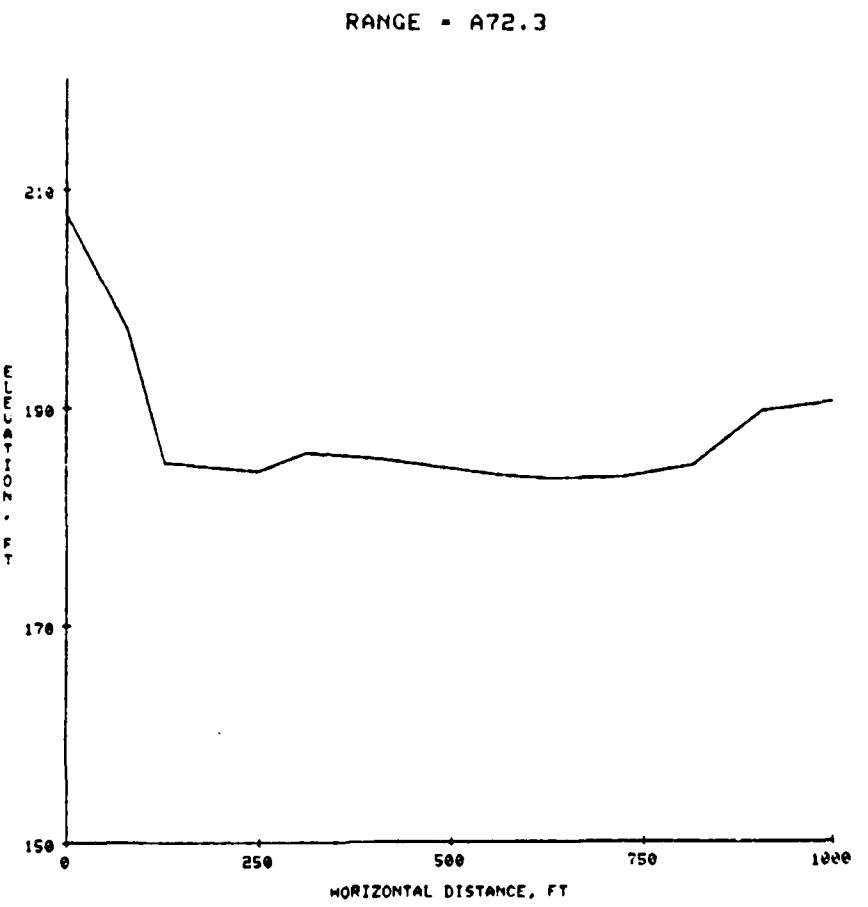


Figure 16. Window option example plot with user-defined scale factors

Plot Menu option 6: EDIT

79. Selecting this option allows the user to edit (add, delete, shift, etc.) any of the three curves plotted. When the user chooses this option, the screen is erased and the Edit Menu is displayed. These options will be discussed later.

Plot Menu option 7: REPLOT

80. This option allows the user to replot the curves just displayed. For example, if the user has plotted the all points and the backwater points (options 3 and 2) and has used the window option (option 4) to view a certain area, the replot option will redisplay this same graph again with all windowing capability included. This option

does not apply to the hardcopy option (option 5). In other words, the user may not select the hardcopy option and then the replot option and expect to get the same graph as was generated on the 4663 plotter. The user must first hit the reset option and then select the appropriate option to plot the data.

Plot Menu option 8: HELP

81. If the user is not familiar with the options for the Plot Menu, a short explanation of each option can be obtained by selecting this option. The screen is erased and the following information is output:

```
PLOT MENU OPTIONS

HERE IS A DESCRIPTION OF ALL OPTIONS AVAILABLE
IN THE PLOTTING PROGRAM.

OPTION        DESCRIPTION
------        -----------
   1          PLOTS BOAT TAPE DATA (DOTTED)
   2          PLOTS BACKWATER DATA (DASHED)
   3          PLOTS ALL POINTS DATA (SOLID)
   4          WINDOWS A SECTION OF THE PLOT
   5          HARD COPY PLOTS ON THE 4663
   6          EDITTING PROGRAM - SMOOTHING,ETC
   7          REPLOTS ALL CURVES AS BEFORE
   8          PRINTS THIS INFO AGAIN TO HELP THE USER
   9          RETURNS TO MAIN MENU
  10          RESETS PLOTTING FLAGS TO ZERO
```

To resume execution of the program, enter a carriage return.

Plot Menu option 9: RETURN

82. This option allows the user to return to the Main Menu.

Plot Menu option 10: RESET

83. This option reinitializes all plotting flags to zero, giving the user the capability to start over with his plotting choices. For example, if the user has selected the all points curve first, that curve will be displayed with appropriate scales. If the user then selects either the boat tape or the backwater curve to be displayed, that curve will be plotted on the same graph using the same scales. If the user does not desire this, he can first hit the reset option and then select the appropriate curve to be plotted. The screen is then erased and the plot will be displayed with appropriate scales for that curve.

Edit Menu

84. The Edit Menu gives the user a chance to modify the existing curves (either all points, backwater, or boat tape) by adding, deleting, shifting, or skewing the original plots. This menu is invoked initially by selecting the EDIT option from the Plot Menu. When this option is selected, the screen is erased; Figure 17 shows the resulting menu board.

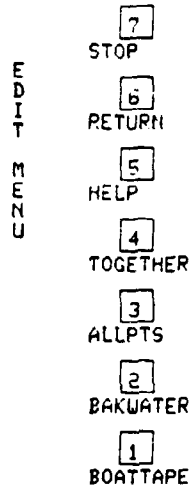


Figure 17. Edit Menu options

Edit Menu option 1: BOATTAPE

85. This option invokes the Boat Edit Menu which will be discussed later. This option allows the user to modify the existing boat tape data for the range selected.

Edit Menu option 2: BAKWATER

86. Selecting this option invokes the Backwater Edit Menu which also will be discussed later. The user can modify the existing backwater data for the range selected.

Edit Menu option 3: ALLPTS

87. Choosing this option gives the user a chance to modify the existing all points data for the range selected. This option invokes

the All Points Edit Menu which will be discussed later.

Edit Menu option 4: TOGETHER

88. This option invokes the All Points and Boat Tape Edit Menu which will be discussed later. It gives the user a chance to see the all points and boat tape information plotted on the same graph for the range selected. Either the boat tape or the all points data or both can be modified by selecting this option.

Edit Menu option 5: HELP

89. If the user is not familiar with the options for the Edit Menu, a short explanation of each option can be displayed by selecting this option. The screen is erased and the following information is output:

```
EDIT MENU OPTIONS

HERE IS A DESCRIPTION OF ALL OPTIONS
THAT MAY BE CHOSEN BY THE USER

OPTION    DESCRIPTION
------    -----------
  1       EDITS BOAT TAPE ONLY
  2       EDITS BACKWATER ONLY
  3       EDITS ALL POINTS ONLY
  4       EDITS BOATTAPE AND ALL POINTS
          TOGETHER WITH SKEWING,ETC.
  5       PRINTS THIS INFO AGAIN TO HELP THE USER
  6       RETURNS TO PLOT MENU
  7       TERMINATES THE PROGRAM
```

To continue execution of the program, enter a carriage return.

Edit Menu option 6: RETURN

90. This option returns control of the program back to the Plot Menu.

Edit Menu option 7: STOP

91. This option gives the user an alternate place during execution to terminate the program.

..ll Points Edit Menu

92. The All Points Edit Menu allows the user to modify the existing all points curve by adding and/or deleting points from the original curve for the range selected. This menu is invoked by selecting the

ALLPTS option from the Edit Menu. When this option is selected, the screen is erased. Figure 18 gives an example of the resulting menu

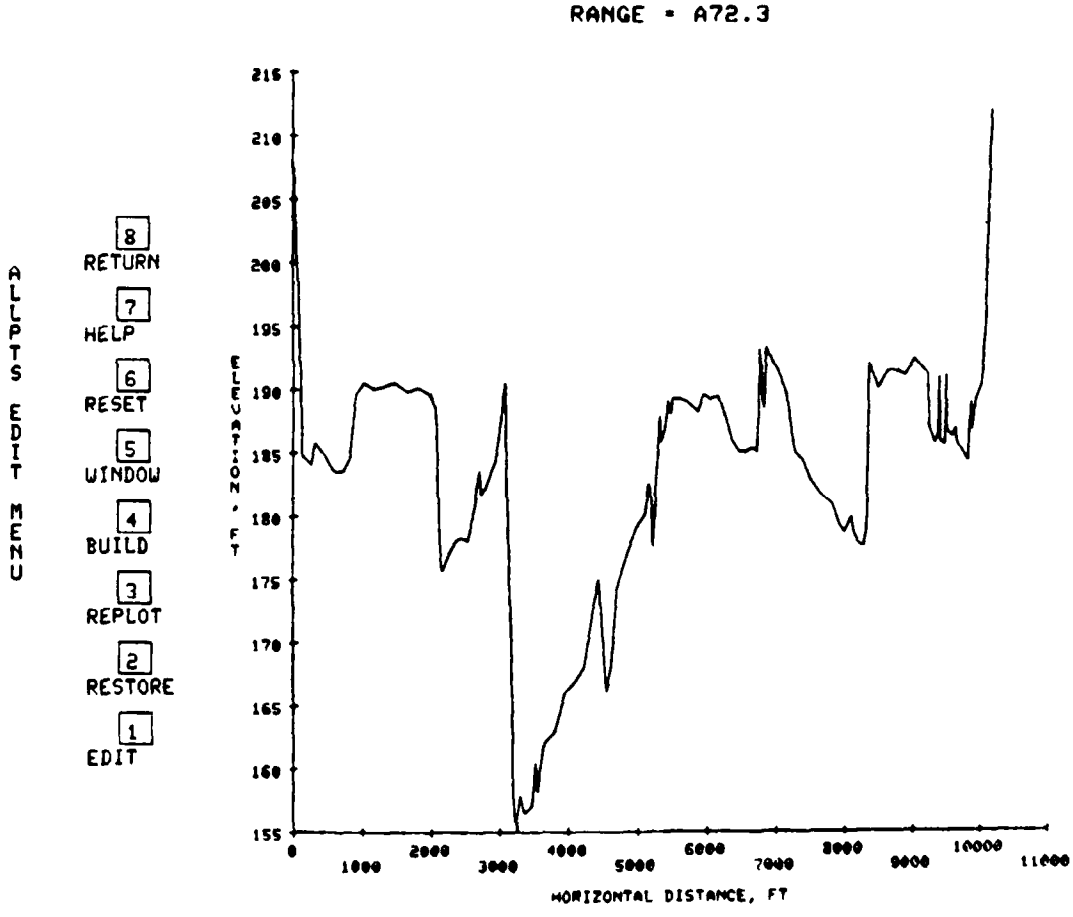


Figure 18. All Points Edit Menu options

board. If no all points file has been attached or if the range selected is not included in the all points file attached and this option is selected, nothing will happen. The cross hairs will reappear for another selection from the Edit Menu.

All Points Edit Menu option 1: EDIT

93. This option allows the user to add or delete points from the existing curve for the range selected. Nothing is updated permanently, but all modifications are stored locally. To save the information, the user must cycle back to the Main Menu option to update.

94. After selecting this option, the bell will ring and the cross hairs will reappear. The user then positions the cross hairs so that the intersection of the vertical and the horizontal cross hairs is as close to the desired point as possible. The user then keys in either a D to delete or an A to add. The program finds the closest point to the intersection and outputs either a D or an A and rings the bell. All deletions and insertions can be done in any order and simultaneously. To terminate editing, type the character E and a carriage return. A bell will ring and the cross hairs will reappear for another selection to be made.

95. Figures 19 and 20 show the ability to delete points. Figures 21 and 22 show the ability to add points.

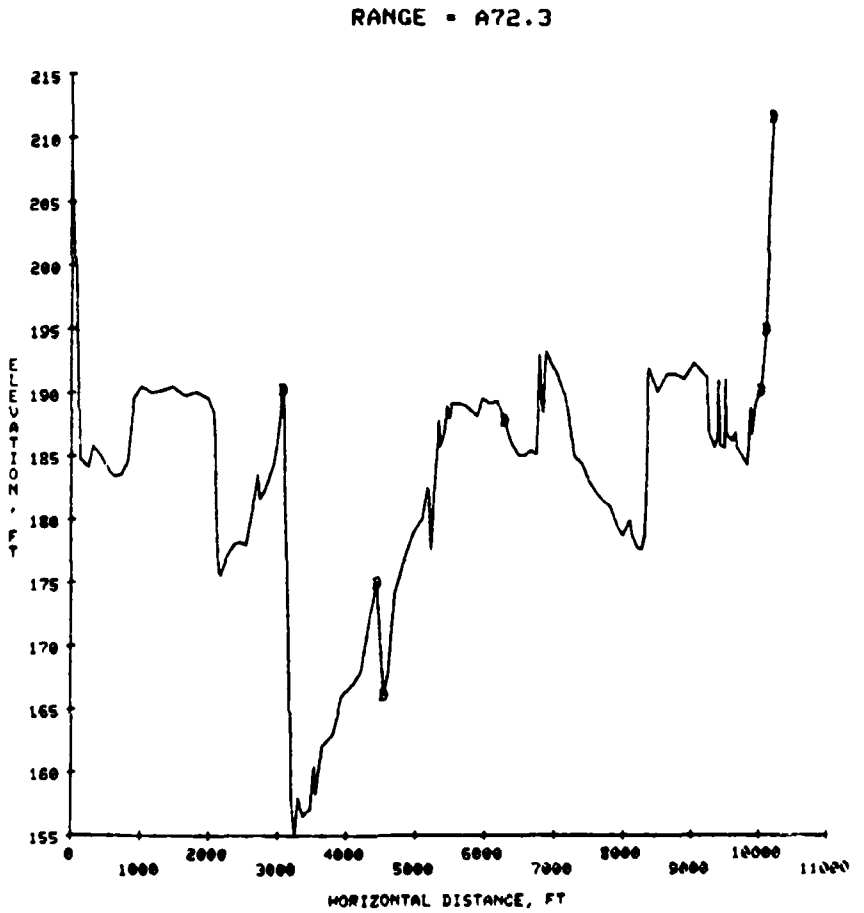


Figure 19. Original plot with deletions marked

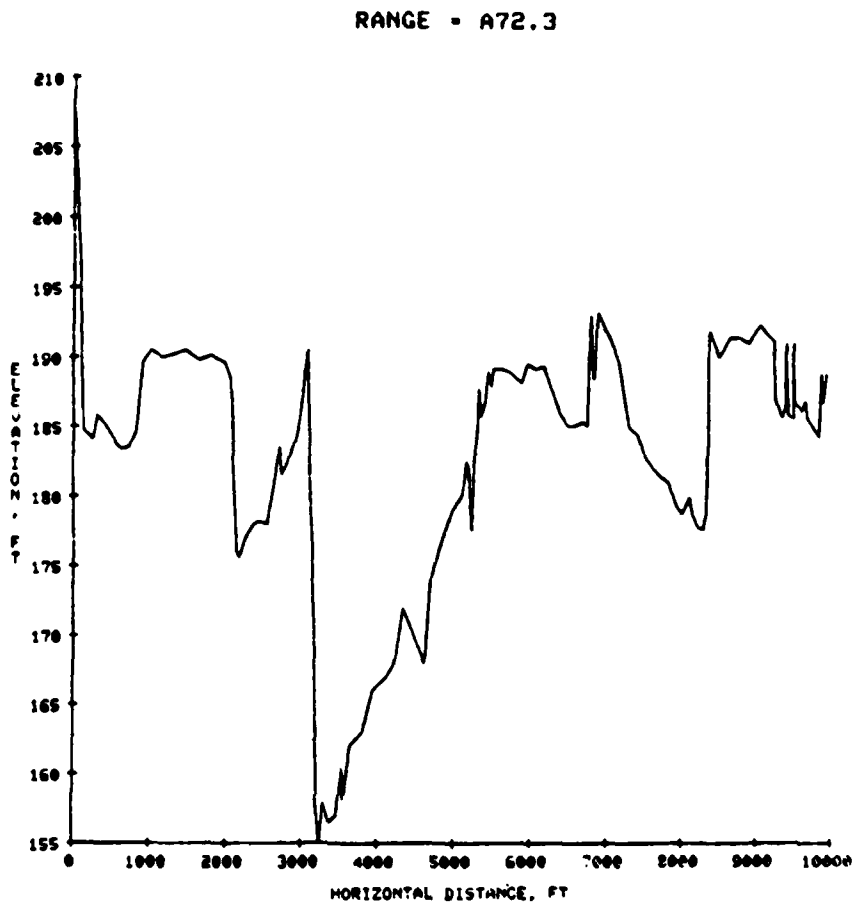


Figure 20. Revised plot with deletions implemented

All Points Edit
Menu option 2: RESTORE

96. This option allows the user to restore the original points for the range selected from the all points working points file. This gives the user the capability to restore the original points he started with if the editing was not satisfactory.

All Points Edit
Menu option 3: REPLOT

97. This option gives the user the capability to replot the edited curve with all modifications included. This option is the same as the REPLOT option in the Plot Menu discussed earlier.

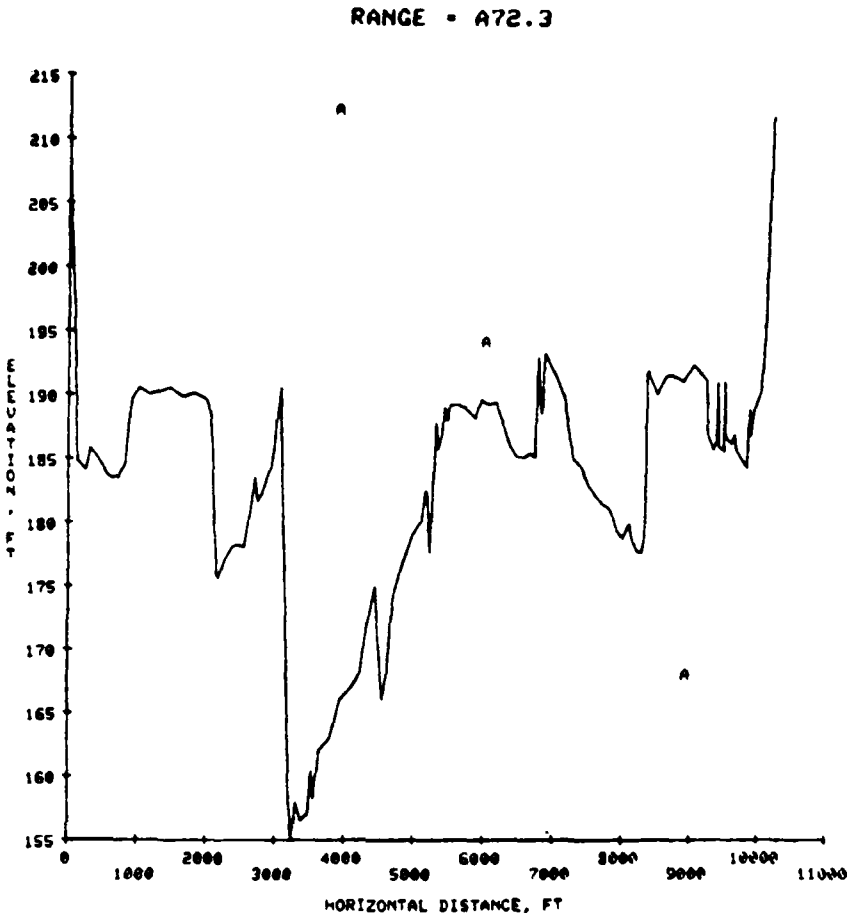


Figure 21. Original plot with additions marked

All Points Edit
Menu option 4: *BUILD*

98. Choosing this option allows the user to construct a backwater curve from the edited all points curve for the range selected. For example, the user may select a range from the all points file, edit the curve, and update this information into the backwater files. This process can be repeated for all ranges in the attached all points file. Hence, the end result is a backwater file created from the edited all points data. The user can then exercise the DECK option in the Main Menu to construct a backwater deck to be used as input to program LRD-I.

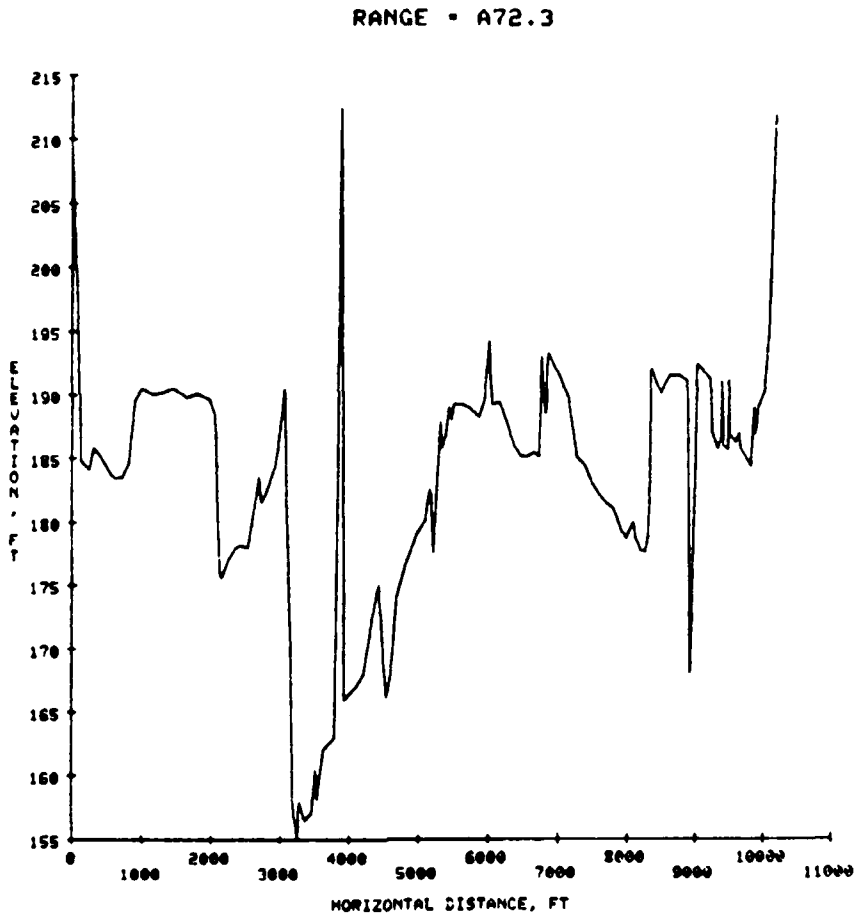


Figure 22. Revised plot with additions implemented

All Points Edit
Menu option 5: WINDOW

99. This option is the same as the Plot Menu option 4 which allows the user to display the edited plot using his own scales.

All Points Edit
Menu option 6: RESET

100. This option resets all plotting scales to the automatic scaling mode and replots the edited curve.

All Points Edit
Menu option 7: HELP

101. If the user is not familiar with the options for the All Points Edit Menu, a short explanation of each option is output by

selecting this option. The screen is erased and the following information is output:

```
ALL POINTS EDIT MENU OPTIONS

HERE IS A DESCRIPTION OF ALL
OPTIONS AVAILABLE TO THE USER

OPTION    DESCRIPTION
------    -----------
  1       EDITS POINTS;TYPE THE CHARACTER 'A'
          TO ADD POINTS;TYPE THE CHARACTER 'D'
          TO DELETE POINTS;TYPE ANY OTHER
          CHARACTER TO TERMINATE
          THE BELL WILL RING MORE THAN ONCE TO
          SIGNIFY THE END OF THE EDIT PROCESS.
          ALL DELETIONS AND ADDITIONS ARE STORED
          AND CONTROL IS TRANSFERRED TO THE MENU
          BOARD AGAIN.
  2       RESTORES ORIGINAL POINTS IF ALL THE
          EDITTING WAS NOT SATISFACTORY AND A
          FRESH START IS DESIRED
  3       REPLOTS REVISED DATA
  4       BUILDS BACKWATER POINTS FROM ALLPTS
  5       WINDOWS THE PLOT
  6       RESETS PLOTTING FLAGS TO ZERO AND
          REPLOTS USING 'AUTOSCALE'
  7       PRINT THIS INFO TO HELP THE USER
  8       RETURNS TO THE EDIT MENU
```

Enter a carriage return to continue execution of the program.

All Points Edit
Menu option 8: RETURN

102. This option returns the user to the Edit Menu for continued execution.

Boat Edit Menu

103. The Boat Edit Menu allows the user to modify the existing boat tape curve by adding and/or deleting points on the original curve for the range selected. This menu is invoked by selecting the BOATTAPE option from the Edit Menu. After selection, the screen is erased; Figure 23 is an example of the resulting menu board. If no boat tape file has been attached or if the range selected is not included in the boat tape file attached and this option is selected, nothing will happen. The cross hairs will reappear for another selection from the Edit Menu.

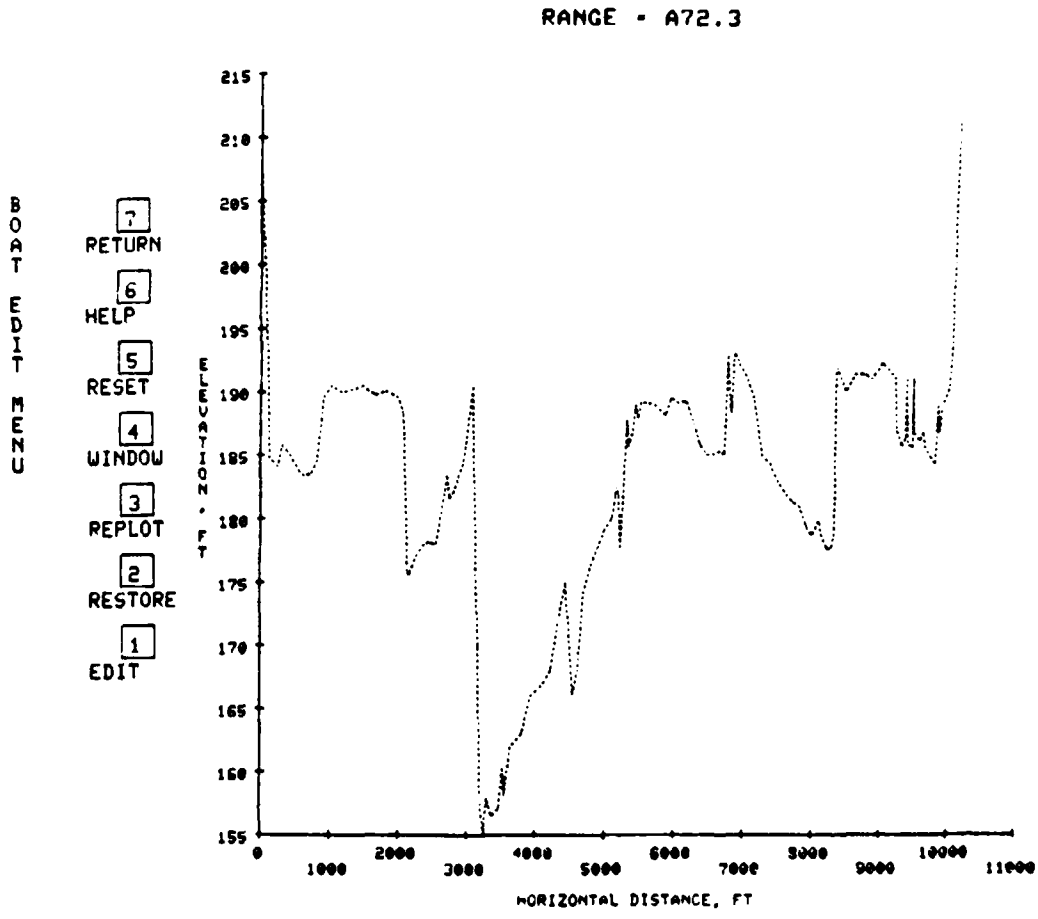


Figure 23. Boat Edit Menu options

Boat Edit Menu option 1: EDIT

104. This option is exactly the same as the All Points Edit Menu option 1. Figures 24 and 25 are examples showing deletions from the boat tape original curve for the range selected. Figures 26 and 27 show the ability to add points to the existing boat tape curve.

Boat Edit Menu option 2: RESTORE

105. This option allows the user to restore the original points for the range selected from the working boat tape points file. This gives the user the capability to restore the original points he started with if his editing was unsatisfactory.

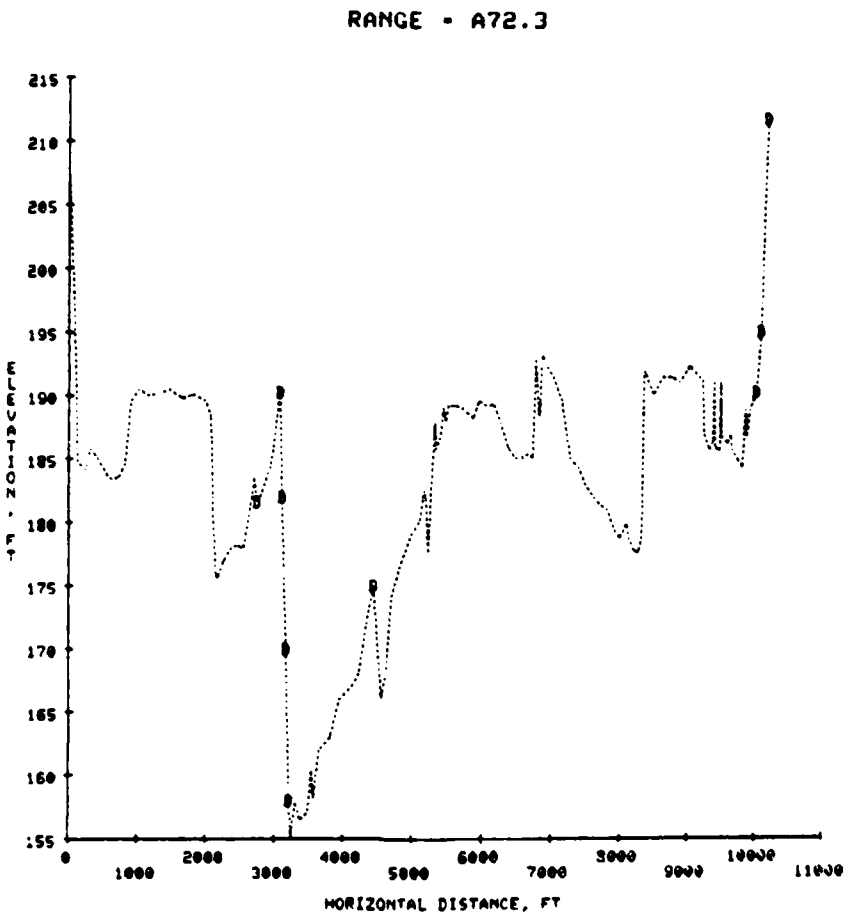


Figure 24. Original plot with deletions marked

Boat Edit Menu option 3: REPLOT

106. Choosing this option gives the user the capability to replot the edited curve with all modifications included. This option is the same as the REPLOT option in the Plot Menu.

Boat Edit Menu option 4: WINDOW

107. This option is the same as Plot Menu option 4 which allows the user to display the edited plot using his own scales.

Boat Edit Menu option 5: RESET

108. All plotting scales are reset to automatic scaling and a replot of the existing edited curve is output by choosing this option.

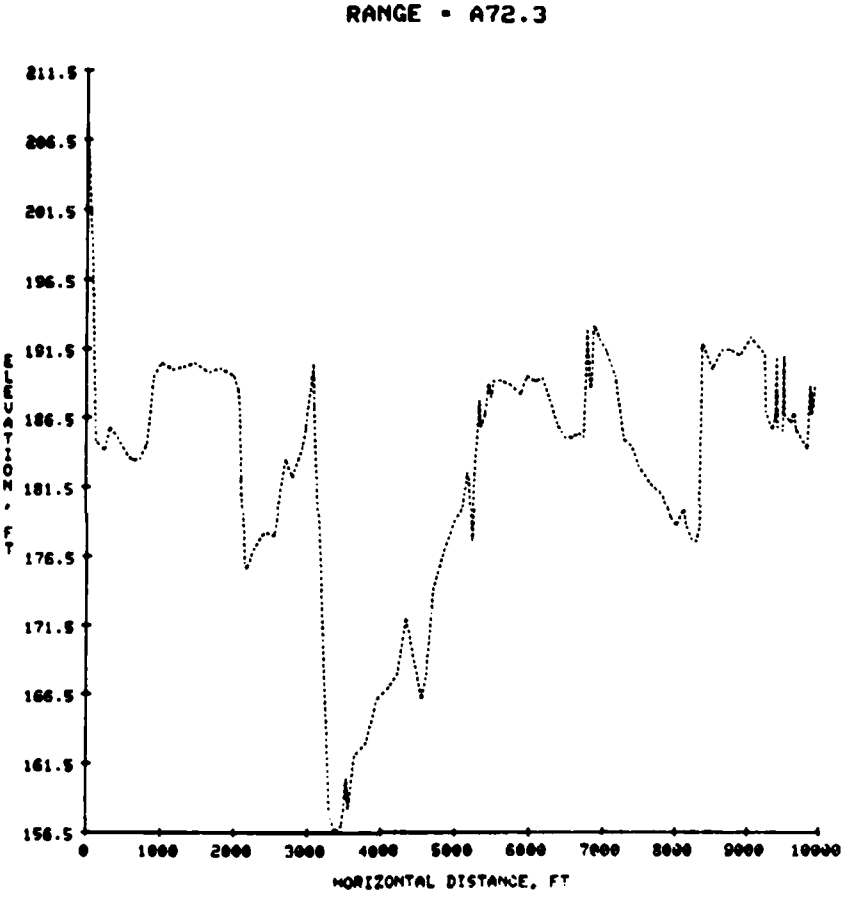


Figure 25. Revised plot with deletions implemented

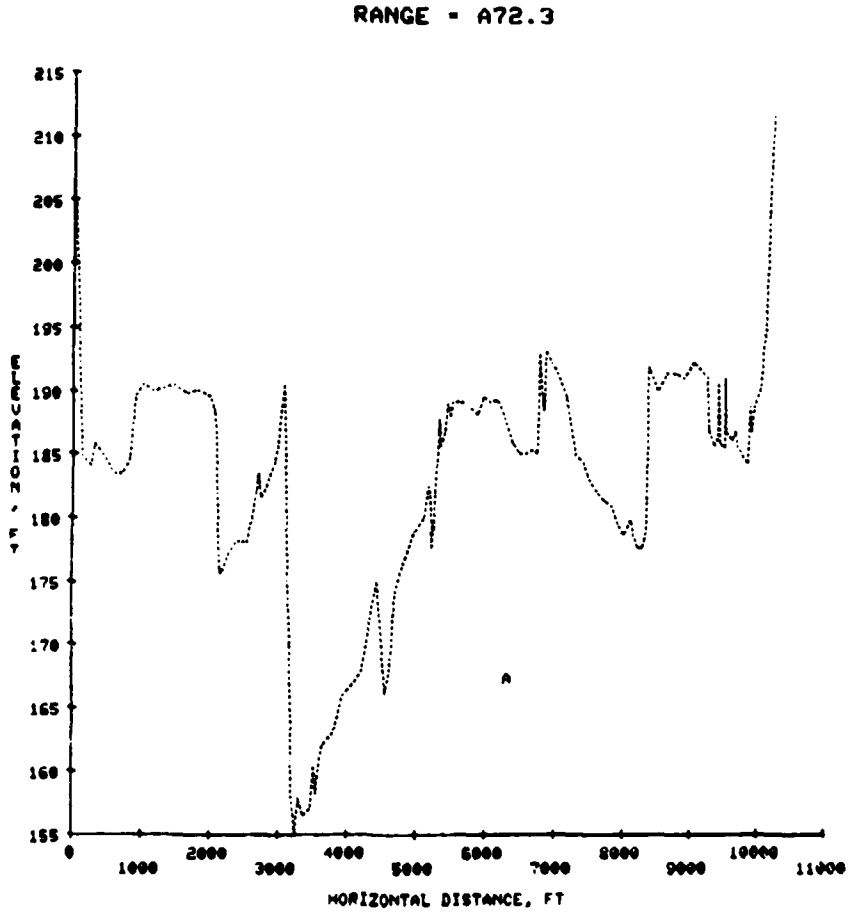


Figure 26. Original plot with additions marked

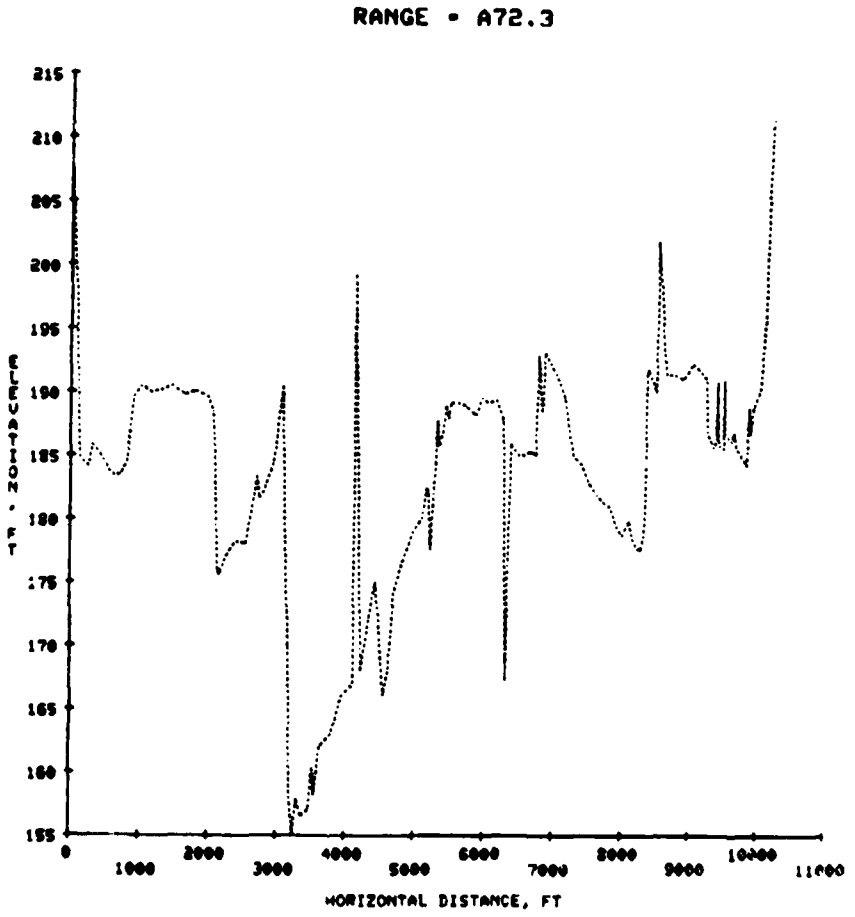


Figure 27. Revised plot with additions implemented

Boat Edit Menu option 6: HELP

109. If the user is not familiar with the options for the Boat Edit Menu, a short explanation of each option is given by selecting this option. The screen is erased and the following information is output:

```
BOAT TAPE EDIT MENU OPTIONS

HERE IS A DESCRIPTION OF ALL
OPTIONS AVAILABLE TO THE USER

OPTION     DESCRIPTION
------     -----------
  1        EDITS POINTS;TYPE THE CHARACTER 'A'
           TO ADD POINTS;TYPE THE CHARACTER 'D'
           TO DELETE  POINTS; TYPE ANY OTHER
           CHARACTER TO TERMINATE
           THE BELL WILL RING MORE THAN ONCE TO
           SIGNIFY THE END OF THE EDIT PROCESS.
           ALL DETLETIONS AND ADDITIONS ARE STORED
           AND CONTROL IS TRANSFERRED TO THE MENU
           BOARD AGAIN.
  2        RESTORES ORIGINAL POINTS IF ALL THE
           EDITTING WAS NOT SATISFACTORY AND A
           FRESH START IS DESIRED
  3        REPLOTS REVISED DATA
  4        WINDOWS THE PLOT
  5        RESETS PLOTTING FLAGS TO ZERO AND
           REPLOTS USING 'AUTOSCALE'
  6        PRINT THIS INFO TO HELP THE USER
  7        RETURNS TO THE EDIT MENU
```

To resume execution of the program, enter a carriage return.

Boat Edit Menu option 7: RETURN

110. This option returns the user to the Edit Menu for continued execution.

All Points and Boat Tape Edit Menu

111. The All Points and Boat Tape Edit Menu allows the user to modify the existing boat tape curve by adding and/or deleting points on the original curve for the range selected. The user can then shift and rotate the edited boat tape curve to any position on the all points curve and replace the boat tape information in the all points curve. This menu is invoked by selecting the TOGETHER option from the Edit Menu. When this option is selected, the screen is erased. Figure 28 gives an example of the resulting menu board and plots displayed. The all points curve is solid and the boat tape curve is dotted. If no all points file

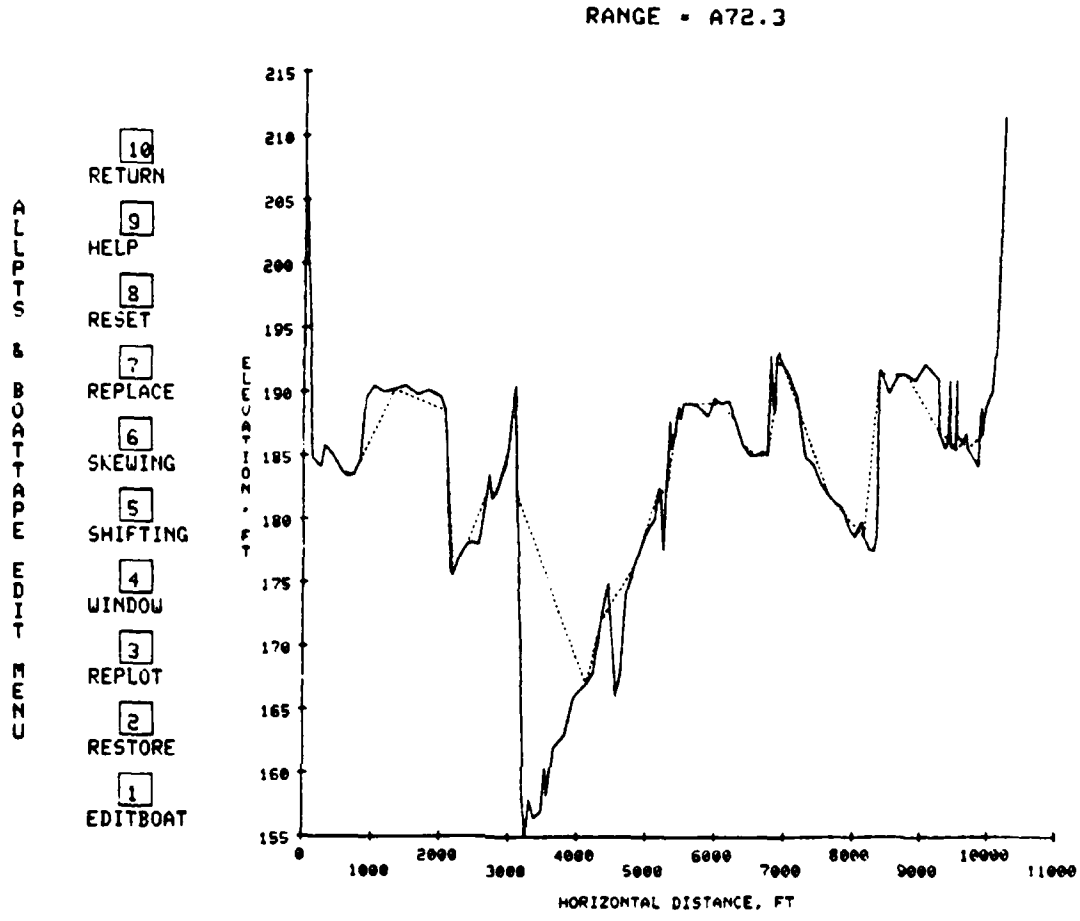


Figure 28. All Points and Boat Tape Edit Menu options

or boat file has been attached or if the range selected is not included in either of the two data bases and this option is selected, nothing will happen. The cross hairs will reappear for another selection from the Edit Menu.

All Points and Boattape
Edit Menu option 1: EDITBOAT

112. This option is exactly the same as the All Points Edit Menu option 1. It allows the user to delete and/or add points on the existing boat tape curve for the range selected. All additions and deletions are made to the boat tape curve only (dotted line). No editing capability is available for the all points curve in this menu board. If

editing to the all points curve is desired, the user must return to the Edit Menu and access option 3 (ALLPTS).

All Points and Boattape
Edit Menu option 2: RESTORE

113. This option allows the user to restore the original points for the range selected from the working boat tape points file. This gives the user the capability to restore the original points he started with if his editing was unsatisfactory.

All Points and Boattape
Edit Menu option 3: REPLOT

114. This option gives the user the capability to replot the edited curve with all modifications included.

All Points and Boattape
Edit Menu option 4: WINDOW

115. This option is the same as Plot Menu option 4 which allows the user to display the edited plot using his own scales.

All Points and Boattape
Edit Menu option 5: SHIFTING

116. This option allows the user to shift the boat tape curve to a different position on the all points curve. The cross hairs will appear and the user must select a point on the all points curve where the boat tape curve should be shifted (point 1 in Figure 29). That particular point is marked by an asterisk (*). The cross hairs reappear and the user must then select a point on the boat tape curve to be shifted to point 1 (point 2 in Figure 29). Figure 30 is an example of the revised plot with all shifting included with the same scales used.

All Points and Boattape
Edit Menu option 6: SKEWING

117. It may be necessary to rotate, shrink, or enlarge the boat tape curve after shifting. This option gives the user that capability. The cross hairs will appear and the user must first pick a point on the all points curve where the boat tape curve should be shifted (point 1 in Figure 31). The cross hairs will reappear, and the user must then select a point on the boat tape curve to the shifted to point 1 (point 2

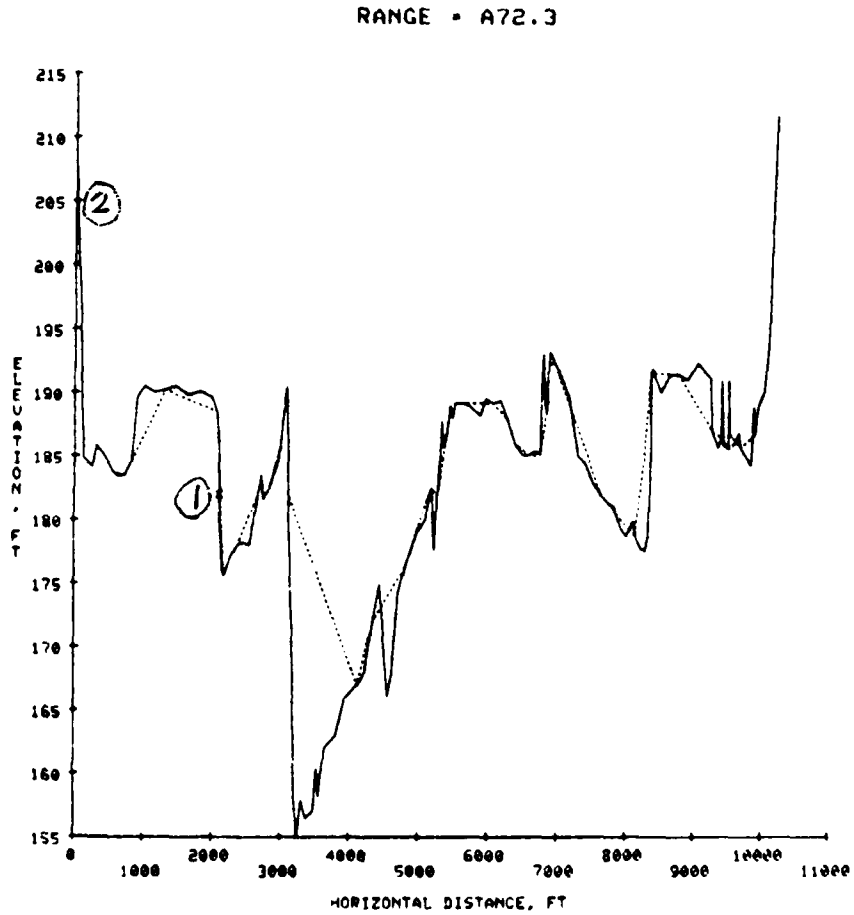


Figure 29. Original plot with shifting points marked

in Figure 31). The cross hairs again will appear, and the user must select a third point on the boat tape curve to remain constant during rotation, enlarging, or shrinking (point 3 in Figure 31). Figure 32 is an example of the revised plot with all skewing included with the same scales used.

All Points and Boattape
Edit Menu option 7: REPLACE

118. This option gives the user the opportunity to replace the revised boat tape curve in the all points curve. All the points on the all points curve up to the first point on the boat tape curve remain in tact. Then the boat tape curve is inserted up to and including the

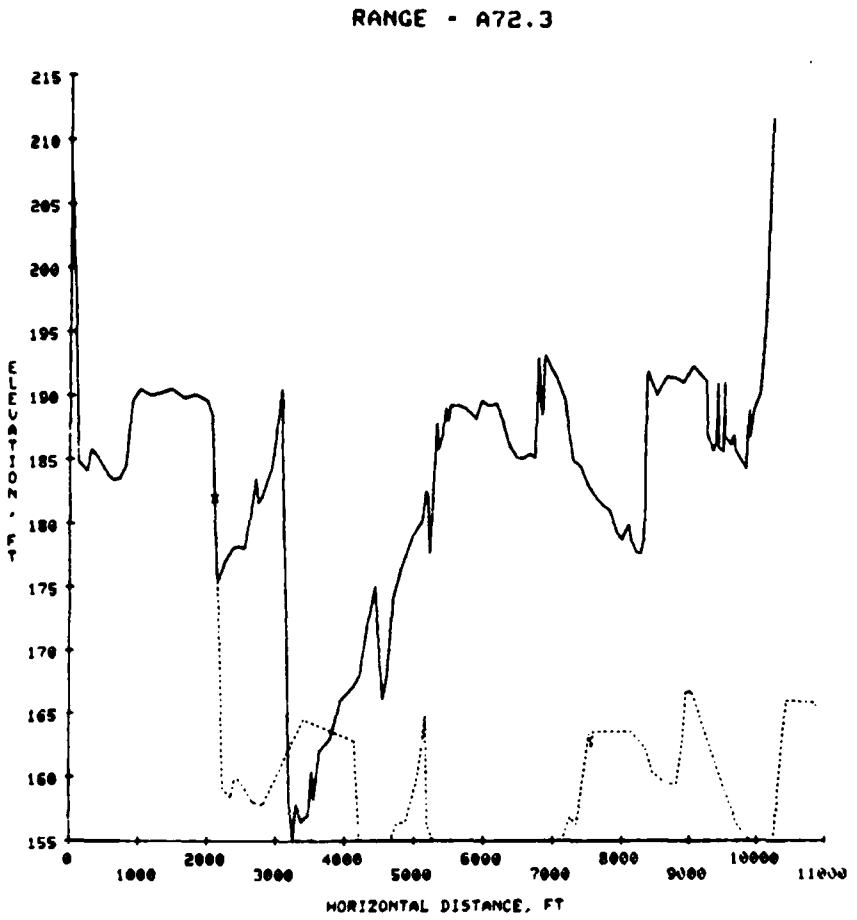


Figure 30. Revised plot with shifting implemented

last point. The remaining points on the all points curve following the last point on the boat tape curve stay in tact. As shown in Figure 32 the boattape curve is dotted and the all points curve is solid. When this option is exercised, the screen is erased. Figure 33 is an example of a revised plot with the REPLACE option implemented. This now becomes the new all points curve for the range selected. Nothing is saved at this point. The user must access the UPDATE option in the Main Menu to save this information in the working header and points all points files.

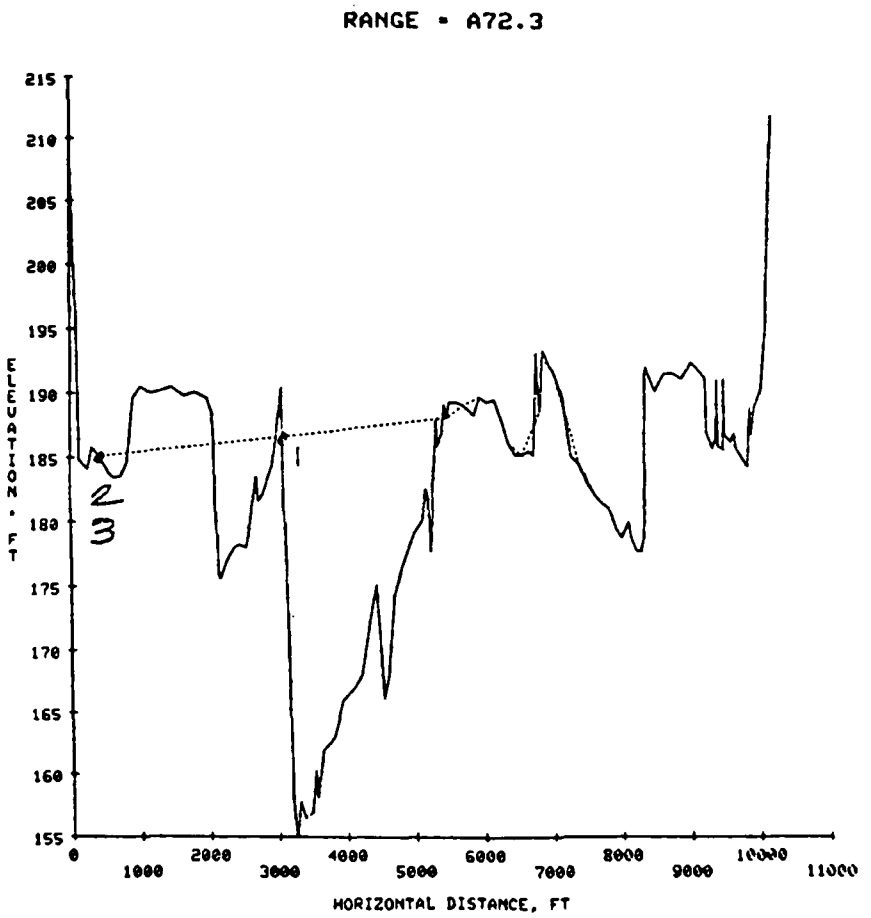


Figure 31. Original plot with skewing points marked

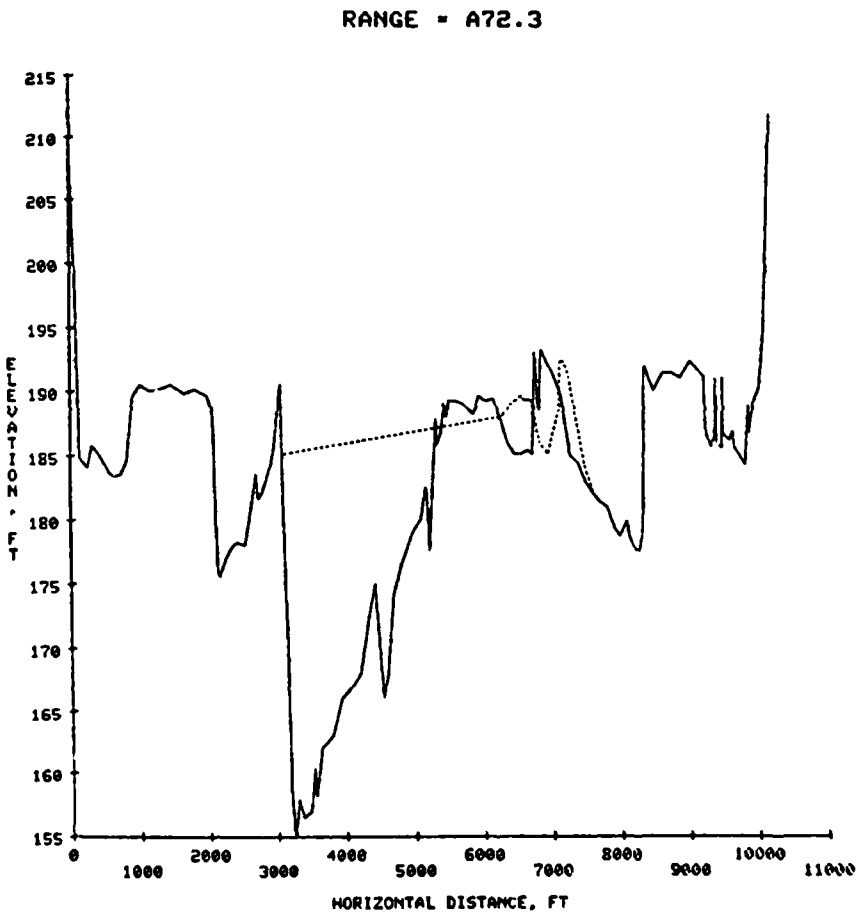


Figure 32. Revised plot with skewing implemented

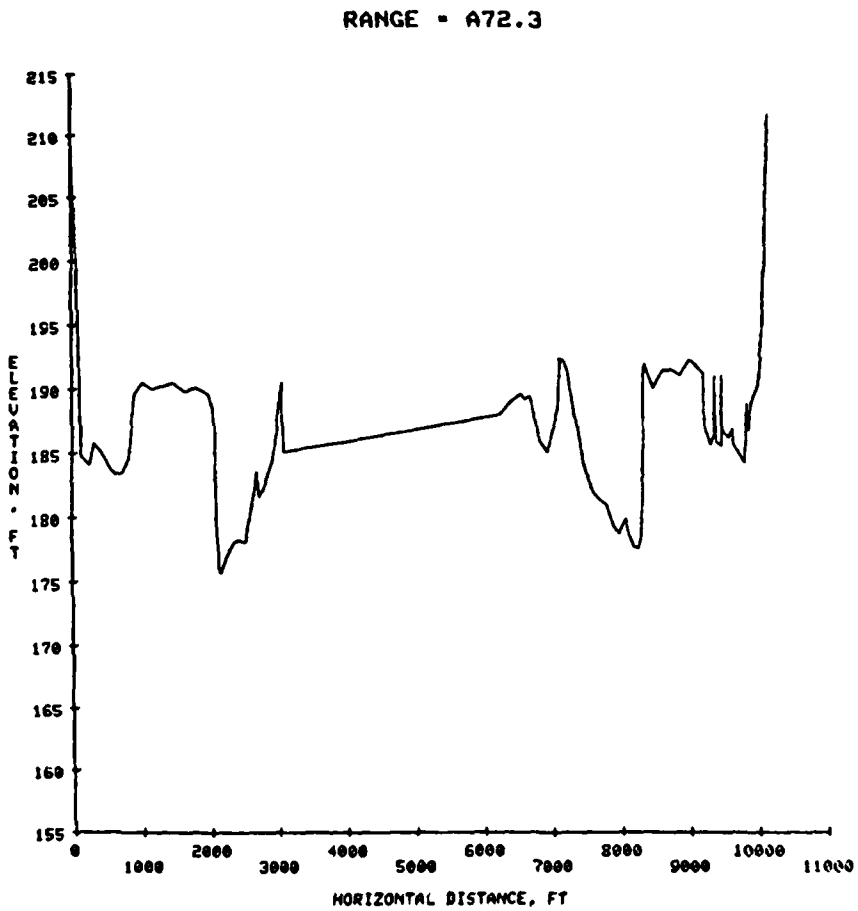


Figure 33. Revised plot with REPLACE option implemented

All Points and Boattape
Edit Menu option 8: RESET

119. All scales are reset to automatic scaling and a replot of the existing edited curve is output by selecting this option.

All Points and Boattape
Edit Menu option 9: HELP

120. If the user is not familiar with the options for the All Points and Boat Tape Edit Menu, a short explanation of each option is given by choosing this option. The screen is erased and the following information is output:

```
BOAT TAPE - ALL POINTS MENU OPTIONS

HERE IS A DESCRIPTION OF ALL
OPTIONS AVAILABLE TO THE USER

OPTION     DESCRIPTION
------     -----------
  1        EDITS POINTS;TYPE THE CHARACTER 'A'
           TO ADD POINTS;TYPE THE CHARACTER 'D'
           TO DELETE POINTS;TYPE ANY OTHER
           CHARACTER TO TERMINATE
           THE BELL WILL RING MORE THAN ONCE TO
           SIGNIFY THE END OF THE EDIT PROCESS.
           ALL DELETIONS AND ADDITIONS ARE STORED
           AND CONTROL IS TRANSFERRED TO THE MENU
           BOARD AGAIN.
  2        RESTORES ORIGINAL POINTS IF ALL THE
           EDITTING WAS NOT SATISFACTORY AND A
           FRESH START IS DESIRED
  3        REPLOTS REVISED DATA
  4        WINDOWS THE PLOT
  5        ALLOWS THE USER TO SHIFT THE BOAT
           TAPE INFO (UP OR DOWN, LEFT OR RIGHT)
  6        ALLOWS THE USER TO MOVE THE BOAT
           TAPE INFO , SHRINK
           OR ENLARGE THE BOAT TAPE INFO (THROUGH
           SOME SCALE FACTOR)
  7        ALLOWS THE USER TO REPLACE ALL POINTS
           INFO WITH NEW BOAT TAPE INFO. MUST NOT
           EXCEED 'NTOT' POINTS.
  8        RESETS PLOTTING FLAGS TO ZERO AND
           REPLOTS USING 'AUTOSCALE'
  9        PRINT THIS INFO TO HELP THE USER
 10        RETURNS TO THE EDIT MENU
```

Simply hit a carriage return to continue execution of the program.

All Points and Boattape
Edit Menu option 10: RETURN

121. This option returns the user to the Edit Menu for continued execution.

Backwater Edit Menu

122. The Backwater Edit Menu allows the user to modify the existing backwater curve by adding and/or deleting points on the original curve for the range selected. This menu is invoked by selecting the BAKWATER option from the Edit Menu. When this option is selected, the screen is erased. Figure 34 is an example of the resulting menu board

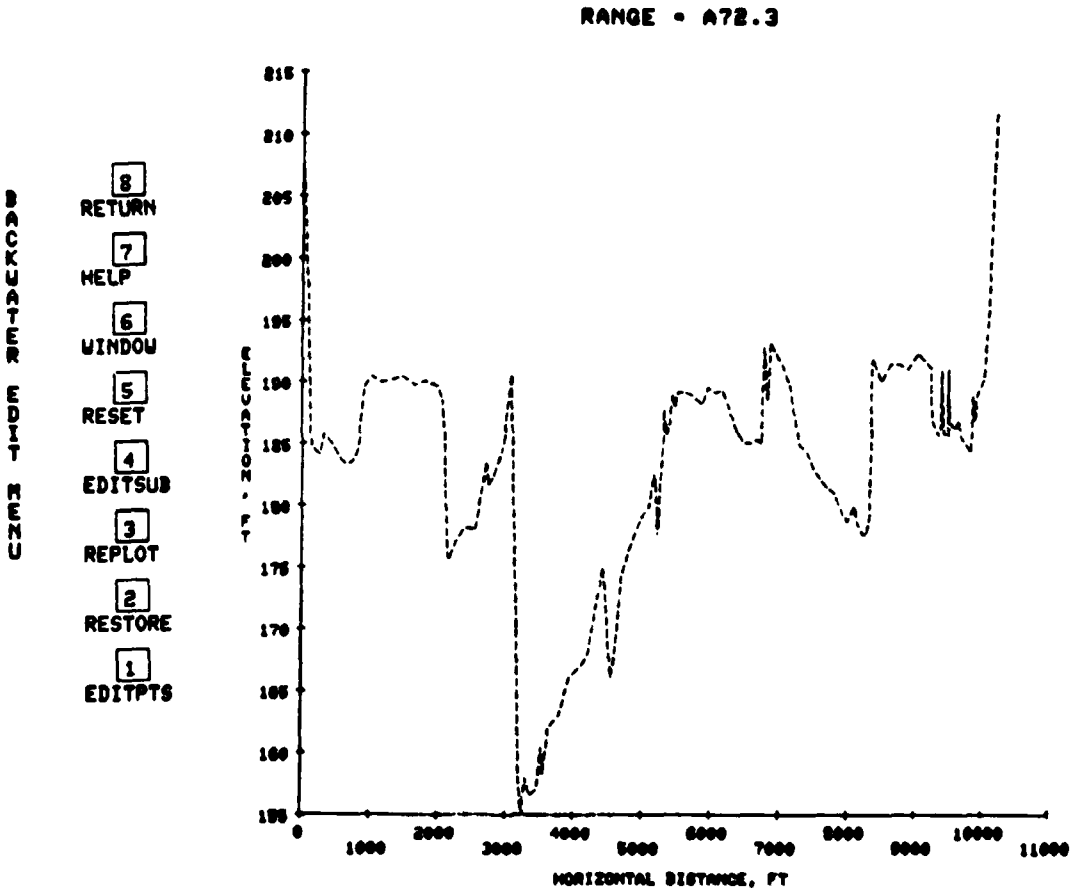


Figure 34. Backwater Edit Menu options

and original backwater curve output. If no backwater file has been attached or if the range selected is not included in the backwater file attached and this option is selected, nothing will happen. The cross hairs will reappear for another selection from the Edit Menu.

Backwater Edit
Menu option 1: EDITPTS

123. This option is exactly the same as the All Points Edit Menu option 1. It allows the user to delete and/or add points to the existing curve for the range selected. Figures 35 and 36 show the capability

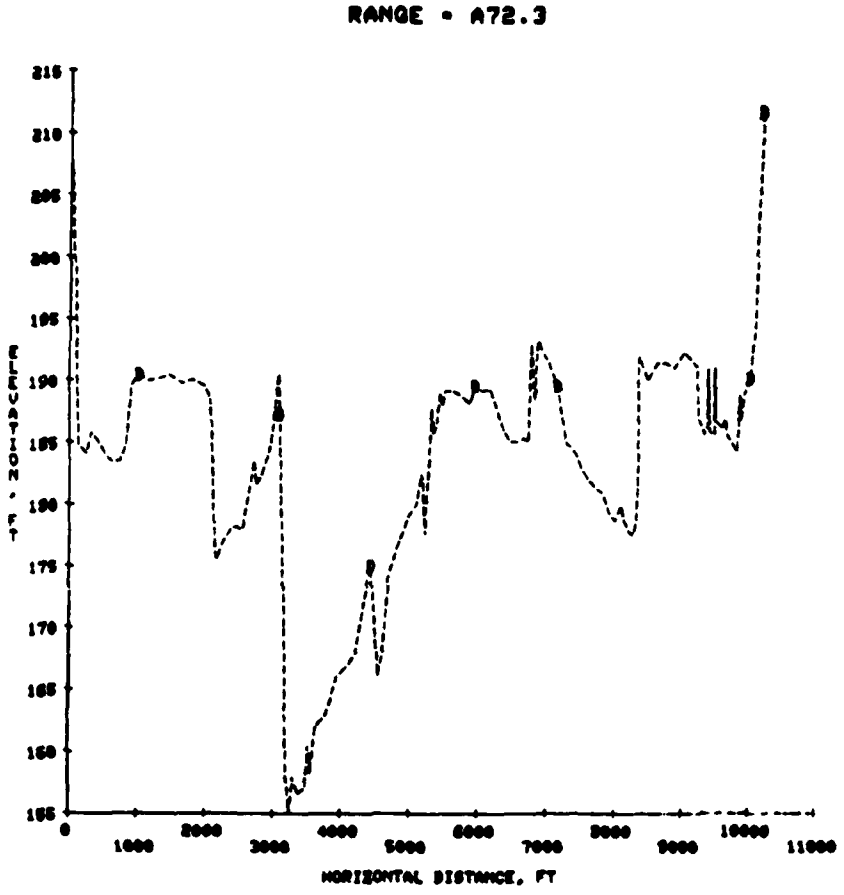


Figure 35. Original plot with deletions marked

of deleting points from the backwater curve. Figures 37 and 38 show the ability to add points to the existing backwater curve.

Backwater Edit
Menu option 2: RESTORE

124. This option allows the user to restore the original points for the range selected from the working backwater points file. This gives the user the capability to restore the original points he started

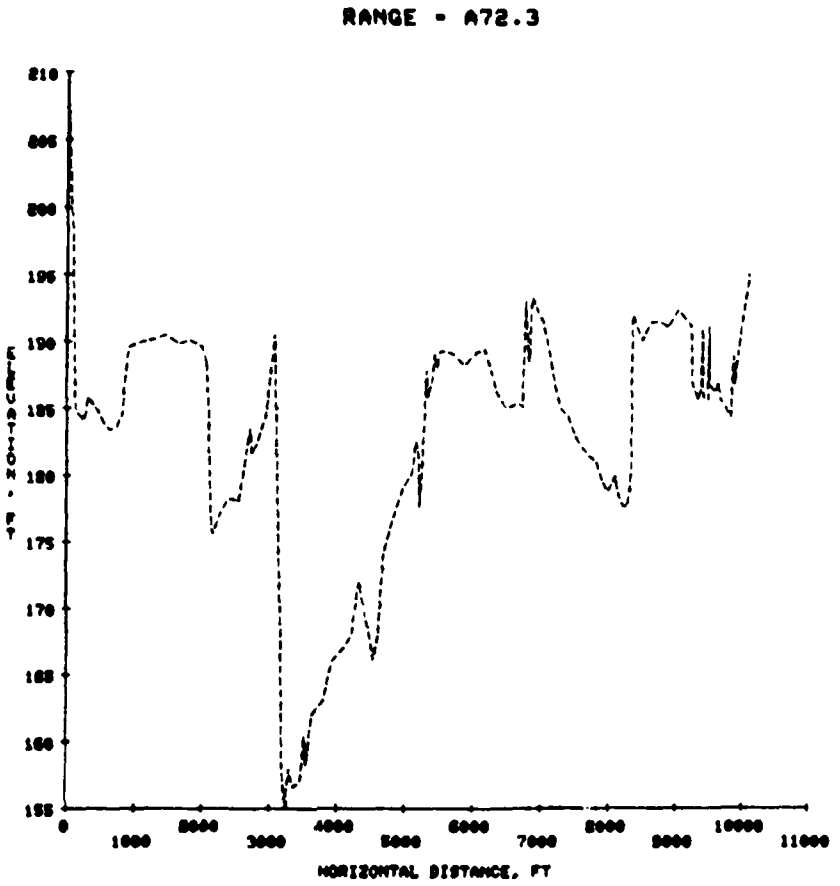


Figure 36. Revised plot with deletions implemented

with if his editing was unsatisfactory.

Backwater Edit
Menu option 3: REPLOT

125. Choosing this option gives the user the capability to replot the edited curve with all modifications included.

Backwater Edit
Menu option 4: EDITSUB

126. This option gives the user the opportunity to add or delete each subsection for the specified range. The screen is erased and the original subsections are plotted along with the existing data points for the range specified. The original subsection values are output in the upper left-hand corner of the screen. The cross hairs will appear.

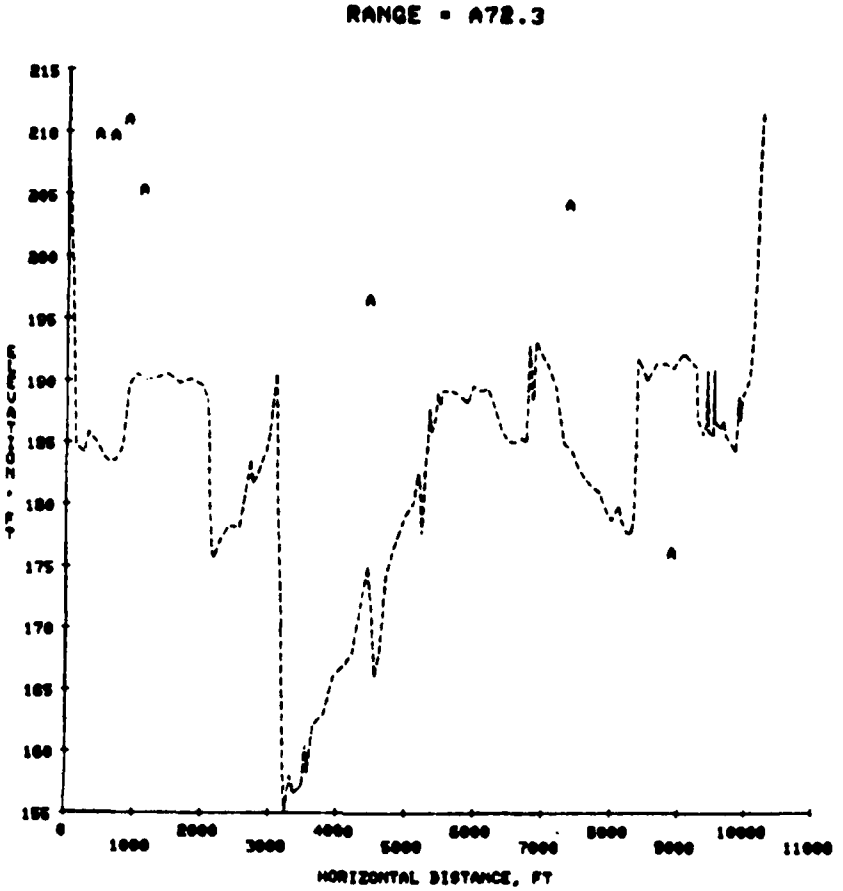


Figure 37. Original plot with additions marked

To delete a subsection, move the cross hairs to the desired subsection line and enter the character D at the terminal and a carriage return. To add a subsection, move the cross hairs to the desired horizontal distance and enter the character A at the terminal and a carriage return. To terminate subsection editing, enter the character E at the keyboard when the cross hairs appear. An X will appear on each subsection deleted. Each subsection added will be solid-lined. At the end of subsection editing, the values of the new subsections are output. Simply type a carriage return to continue execution.

127. Figures 39-41 show an example of subsection editing.

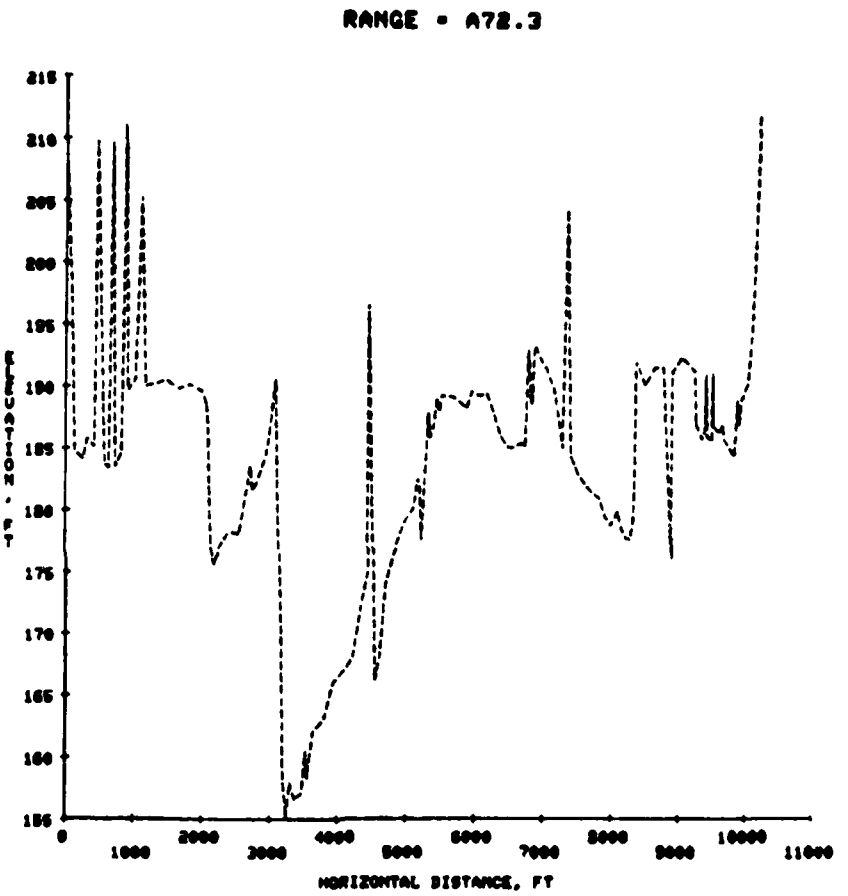


Figure 38. Revised plot with additions implemented

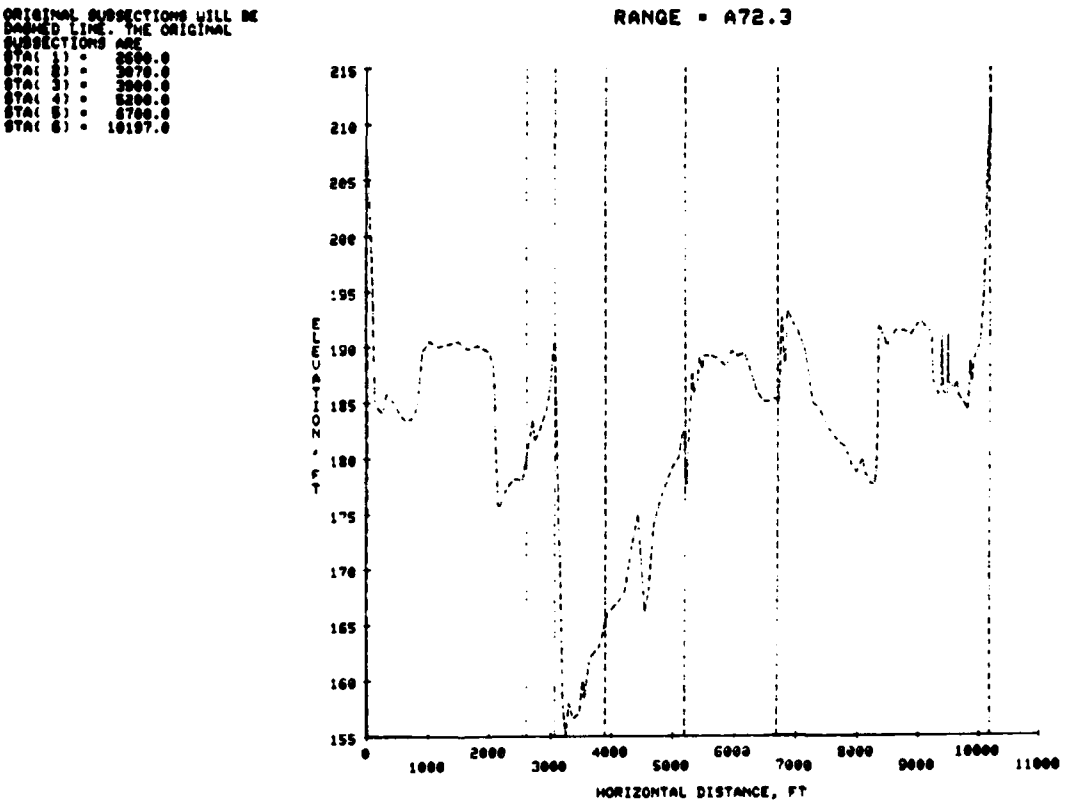


Figure 39. Original plot with current subsections output

ORIGINAL SUBSECTIONS WILL BE
MARKED [ ]. THE ORIGINAL
SUBSECTIONS ARE
STA(1) = 2000.0
STA(2) = 3070.0
STA(3) = 3900.0
STA(4) = 6200.0
STA(5) = 6700.0
STA(6) = 10197.0

THE REVISED SUBSECTIONS ARE
STA(1) = 1310.0
STA(2) = 3070.0
STA(3) = 3900.0
STA(4) = 6700.0
STA(5) = 7987.0

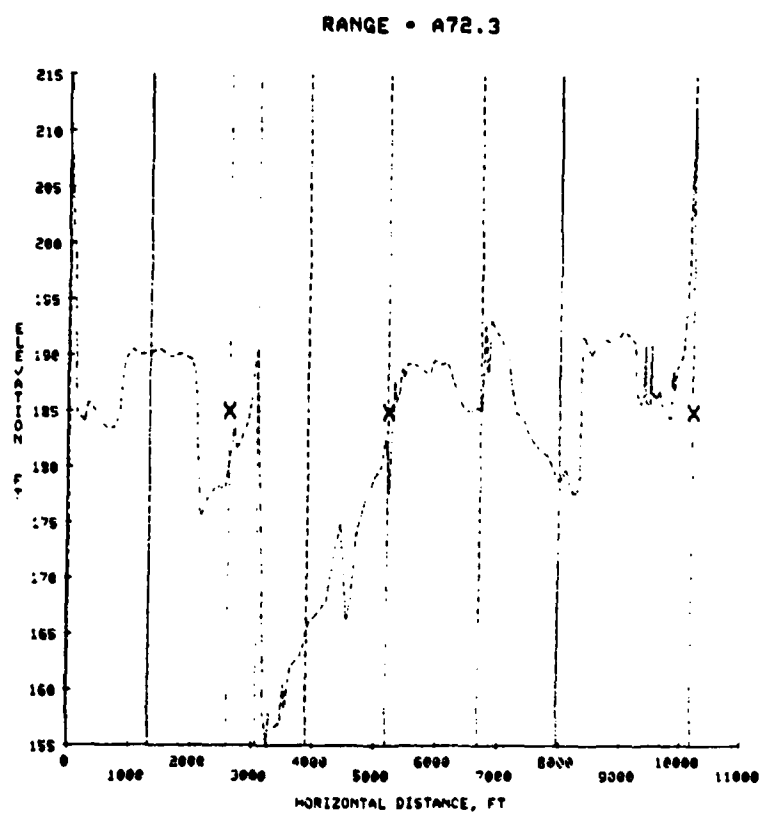


Figure 40. Revised plot with subsection editing marked

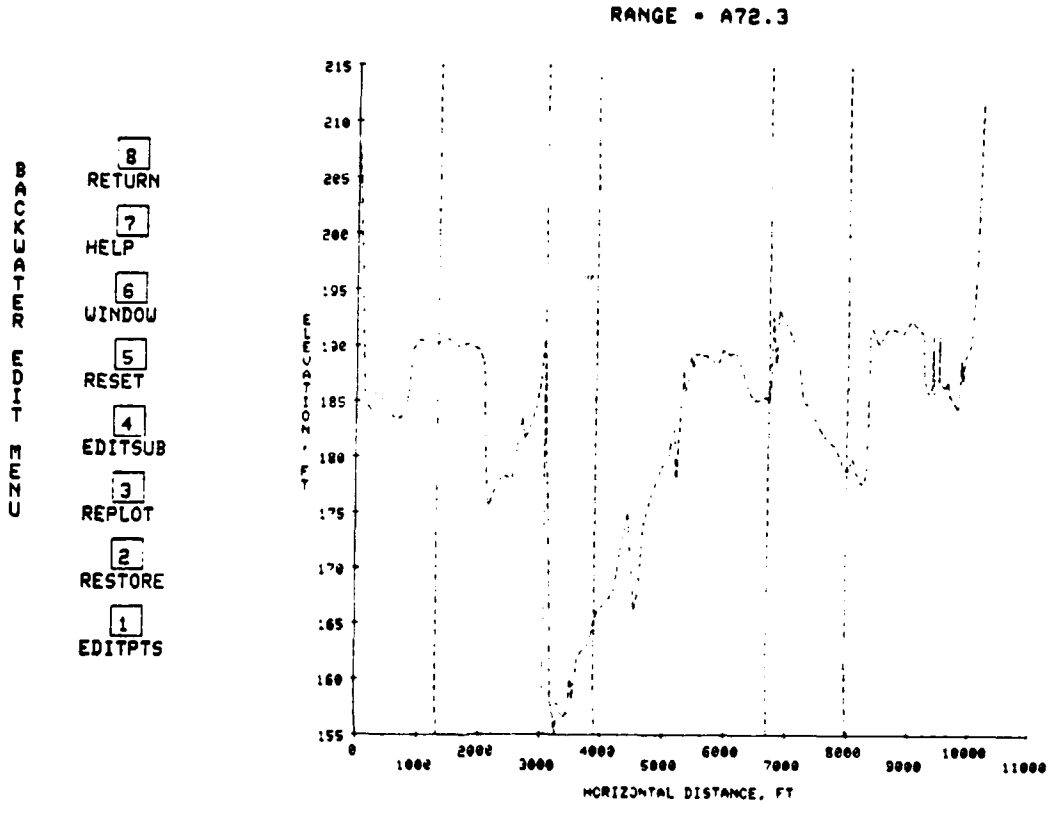


Figure 41. Revised plot with subsection editing implemented

Backwater Edit
Menu option 5: RESET

128. All plotting scales are reset to automatic scaling and a replot of the existing edited curve is output by selecting this option.

Backwater Edit
Menu option 6: WINDOW

129. This option is the same as Plot Menu option 4 which allows the user to display the plot using his own scales.

Backwater Edit
Menu option 7: HELP

130. If the user is not familiar with the options for the Backwater Edit Menu, a short explanation of each option is given by choosing

this option. The screen is erased and the following information is output.

```
BACKWATER EDIT MENU OPTIONS

HERE IS A DESCRIPTION OF ALL
OPTIONS AVAILABLE TO THE USER

OPTION     DESCRIPTION
------     -----------
  1        EDITS POINTS;TYPE THE CHARACTER 'A'
           TO ADD POINTS;TYPE THE CHARACTER 'D'
           TO DELETE POINTS;TYPE ANY OTHER
           CHARACTER TO TERMINATE
           THE BELL WILL RING MORE THAN ONCE TO
           SIGNIFY THE END OF THE EDIT PROCESS.
           ALL DELETIONS AND ADDITIONS ARE STORED
           AND CONTROL IS TRANSFERRED TO THE MENU
           BOARD AGAIN.
  2        RESTORES ORIGINAL POINTS IF ALL THE
           EDITTING WAS NOT SATISFACTORY AND A
           FRESH START IS DESIRED
  3        REPLOTS REVISED DATA
  4        EDITS SUBSECTIONS; TYPE 'D' TO DELETE;
           TYPE 'A' TO ADD. TYPE ANY OTHER CHARACTER
           TO TERMINATE. THE BELL WILL RING MORE THAN
           ONCE TO SIGNIFY THE END OF THE EDIT PROCESS
           ALL DELETIONS AND ADDITIONS ARE STORED
           AND CONTROL IS TRANSFERRED TO THE MENU
           BOARD AGAIN.
  5        RESETS PLOTTING FLAGS TO ZERO AND REPLOTS
          USING 'AUTOSCALE'
  6        WINDOWS THE PLOT
  7        PRINT THIS INFO TO HELP THE USER
  8        RETURNS TO THE EDIT MENU
```

To resume execution of the program, enter a carriage return.

Backwater Edit
Menu option 8: RETURN

131. This option returns the user to the Edit Menu for continued execution.

APPENDIX A: INPUT AND OUTPUT FILE EXAMPLES

1. Boat tape input file (BTDA0979):

```
C0001110101816443060343397000700001642432034231800090000164575503423560012000000000000
S1000000002164372403407480003200000200000000000000000000000000000000000000000000000020
F0003110111000000000000000134013316454920342164013301341645492034217201360135000000000
F0004110117000000000000000158014500000000000000016701590000000000000001830171000000000
F0005110123164545703421160236019316454440342106031502151645432034210103610301000000000
F0006110129164541603420960000332164540203420900469036816453860342080000003820000000000
P0007110135164537003420660558039716453570342053063404611645342034203800000532000000000
F0008110141164532803420260640059716453110342011063906281645298034200000000639000000000
F0009110147164528003419850630063716452660341976000006351645249034196206180629000000000
P0010110153164523403419490611062216452210341939060906181645204034192400000613000000000
F0011110159164519103419110596060916451750341896058605991645161034188205760590000000000
F0012110205164514603418700568058116451280341856055105681645113034184605370551000000000
P0013110211164509703418350520053616450810341823050705201645066034181004930505000000000
P0014110217164505003417980476049116450350341787046604781645020034177204580466000000000
P0015110223164505034175804450455164499003417450438044516449750341732043004370000000000
F0016110229164495803417200422043016449420341709042004241644925034169804130419000000000
P0017110235164490703416860412041416448920341675040904111644877034166204070409000000000
P0018110241164486103416500406040816448450341637040804071644833034162504070407000000000
P0019110247164481303416130408040716447970341600040604071644782034158704604066000000000
P0020110253164476703415740405405164475203415600402040416447370341548039204020000000000
P0021110259164472103415340378038916447060341523037703791644691034151003750376000000000
F0022110305164467203414960373037516446570341486036203711644642034147403490361000000000
P0023110311164462403414600326035116446090341449000003431644594034143702200279000000000
P0024110317164457903414240215022916445630341412022202181644547034139902100218000000000
P0025110323164453103413870206020916445160341375020402061644499034136302060205000000000
P0026110329164448303413500206020616444680341338019302021644454034132601870192000000000
P0027110335164443903413120189018816444230341298019701911644440803412860211020000000000
P0028110341164438903412720219021116443730341261022102181644358034125002210220000000000
P0029110347164434203412390225022216443280341226022902271644311034121302302300000000000
P0030110353164429603412010230023116442810341188022802301644266034117502160227000000000
P0031110359164425103411610194020916442350341148021402011644220034113602330216000000000
P0032110405164420303411230234022916441860341111202330234164417003411000216023000000000
P0033110411164415503410880208021616441410341076022102121644125034106302180218000000000
P0034110417164411003410490210021716440940341036019802081644078034102501580186000000000
P0035110423164406203410140137016016440450341002008401281644030034099200610085000000000
P0036110429164401303409799006300661643999034096800720065164398503409550083007400000000
P0037110435164397103409430083008116439560340931008000831643940340919007400790000000000
P0038110441164392203409050000007516439090340894000000691643894034088300640065000000000
P0039110447164387903408710065006316438600340859007200651643840034085100730071000000000
P0040110453164382703408410072007216438240340826007100720000000000000000074007200000000
P0041110459000000000000000072007200000000000000000680071000000000000000000000000000000
```

2. Boat tape output files:

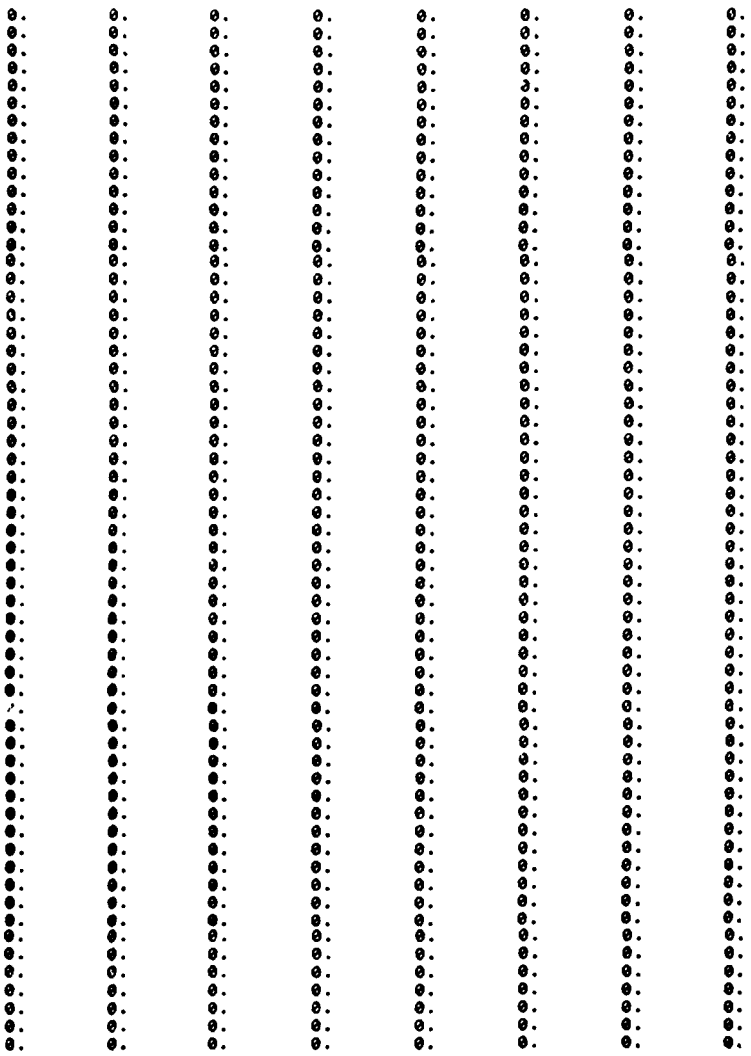
a. Master and working header files (BTDA0979):

```
   2          4
01/15/80     01/15/80          1          4
A72.3
```

b. Master and working points files (BTDA0979):

263.00	129.85	310.67	119.60	353.67	134.37	398.67	110.27
442.67	107.37	490.00	108.40	535.33	109.33	579.33	91.40
626.00	94.80	673.67	99.33	720.00	103.33	765.00	106.23
813.33	108.17	863.00	109.07	909.67	109.30	957.67	109.33
1003.00	110.03	1049.00	112.33	1098.00	113.87	1146.00	131.80
1192.00	128.43	1239.67	129.47	1286.67	130.47	1331.67	130.10
1381.67	127.97	1428.00	127.13	1474.00	127.53	1519.67	128.63
1568.67	127.23	1614.67	128.43	1661.00	131.13	1709.33	140.60
1756.00	142.73	1799.33	142.10	1846.67	147.87	1895.33	143.00
1929.50	139.15	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.

(Continued)



3. All points input file (APTRIAL):

```
      1       0       1       0       0       0       0       0       0       0
*POOL NO. 3 (ALL POINTS INPUT FILE)
*    FEB 1978
*PROGRAM NO. 722-M4-05B
*:CHANNEL PORTIONS WERE SURVEYED BEFORE THE 10 DEC 71 FLOOD
*THE OVERBANK PORTIONS WERE SURVEYED AFTER THE 10DEC 71 FLOOD]
Q1.     70000.  100000. 150000. 180000. 230000. 300000. 350000. 400000. 470000.
R182.0  182.0   182.0   182.0   182.0   183.2   185.4   186.7   188.0   189.6
P0.1    .00015


A72.3   1.      133.    1.      6.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C1.     1.      1.      1.      1.      1.
D192.0  192.0
E1.055
E2.1
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
G0.0    207.71  79.     197.13  128.    184.8   249.    184.1   313.    185.8
G418.   185.1   568.    183.7   628.    183.4   723.    183.5   816.    184.6
G907.   189.6   1013.   190.5   1162.   190.    1310.   190.2   1464.   190.5
G1642.  189.8   1804.   190.1   1982.   189.6   2050.   188.5   2051.   188.45
G2052.  188.4   2074.   186.4   2094.   182.    2130.   176.    2160.   175.6
G2250.  177.    2360.   178.    2425.   178.2   2537.   178.    2659.   182.
G2699.  183.5   2729.   181.6   2794.   182.2   2929.   184.4   2969.   185.8
G3064.  190.3   3073.   190.5   3082.   187.3   3100.   181.96  3160.   170.
G3200.  158.    3250.   155.    3300.   157.9   3370.   156.5   3475.   157.
G3530.  160.4   3555.   158.2   3640.   162.    3800.   163.    3935.   166.
G4110.  167.    4220.   168.    4330.   172.    4430.   175.    4545.   166.1
G4610.  168.    4690.   174.    4800.   176.3   4970.   179.    5100.   180.1
G5144.  181.96  5159.   182.5   5184.   181.96  5216.   177.6   5254.   181.96
G5304.  186.9   5312.   187.8   5332.   185.8   5392.   186.8   5432.   189.0
G5472.  188.0   5502.   189.2   5612.   189.2   5712.   189.0   5867.   188.2


G5947.  189.6   6052.   189.2   6162.   189.4   6259.   187.9   6364.   186.0
G6469.  185.1   6559.   185.1   6659.   185.4   6724.   185.1   6766.   193.0
G6798.  189.5   6816.   188.5   6832.   189.4   6849.   192.4   6864.   193.25
G6940.  192.3   7032.   191.4   7150.   189.6   7270.   185.0   7387.   184.4
G7487.  183.0   7607.   182.0   7702.   181.4   7807.   181.0   7907.   179.4
G7987.  178.7   8092.   179.9   8127.   178.7   8207.   177.7   8267.   177.6
G8312.  178.7   8329.   181.5   8347.   191.6   8357.   191.96  8487.   190.1
G8627.  191.5   8755.   191.5   8883.   191.1   9027.   192.40  9227.   191.2
G9242.  187.0   9329.   185.7   9379.   186.5   9396.   191.0   9409.   185.9
G9484.  185.6   9497.   191.1   9502.   186.8   9594.   186.2   9644.   186.9
G9664.  185.7   9824.   184.3   9864.   188.9   9884.   186.8   9927.   188.9
G10028. 190.3   10101.  195.1   10197.  211.8
A73.3   1.      133.    1.      6.              1.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C5500.  5500.   5500.   5500.   5500.   5500.
D191.3  191.3
E1.055
E2.1
E3.019  470000. .021    400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
 -1.

*
```

4. All points output files:

a. Master and working header files (APTRIAL):

```
     1       0       1       0       0       0       0       0       0       0
*POOL NO. 3 (ALL POINTS INPUT FILE)
*   FEB 1978
*PROGRAM NO. 722-M4-05B
**CHANNEL PORTIONS WERE SURVEYED BEFORE THE 10 DEC 71 FLOOD
*THE OVERBANK PORTIONS WERE SURVEYED AFTER THE 10DEC 71 FLOOD)
Q1.      70000.  100000. 150000. 180000. 230000. 300000. 350000. 400000. 470000.
R182.0  182.0   182.0   182.0   182.0   183.2   185.4   186.7   188.0   189.6
P0.1     .00015


   3        17
01/15/80     01/15/80          1          15
A72.3   1.       133.    1.       6.
01/15/80     01/15/80          2          17
A73.3   1.       133.    1.       6.                          1.
```

b. Master and working points files (APTRIAL):

0.	207.71	79.00	197.13	128.00	184.80	249.00	184.10
313.00	185.80	418.00	185.10	568.00	183.70	628.00	183.40
723.00	183.50	816.00	184.60	907.00	189.60	1013.00	190.50
1162.00	190.00	1310.00	190.20	1464.00	190.50	1642.00	189.80
1804.00	190.10	1982.00	189.60	2050.00	188.50	2051.00	188.45
2052.00	188.40	2074.00	186.40	2094.00	182.00	2130.00	176.00
2160.00	175.60	2250.00	177.00	2360.00	178.00	2425.00	178.20
2537.00	178.00	2659.00	182.00	2699.00	183.50	2729.00	181.60
2794.00	182.20	2929.00	184.40	2969.00	185.80	3064.00	190.30
3073.00	190.50	3082.00	187.30	3100.00	181.96	3160.00	170.00
3200.00	158.00	3250.00	155.00	3300.00	157.90	3370.00	156.50
3475.00	157.00	3530.00	160.40	3555.00	158.20	3640.00	162.00
3800.00	163.00	3935.00	166.00	4110.00	167.00	4220.00	168.00
4330.00	172.00	4430.00	175.00	4545.00	166.10	4610.00	168.00
4690.00	174.00	4800.00	176.30	4970.00	179.00	5100.00	180.10
5144.00	181.96	5159.00	182.50	5184.00	181.96	5216.00	177.60
5254.00	181.96	5304.00	186.90	5312.00	187.80	5332.00	185.80
5392.00	186.80	5432.00	189.00	5472.00	188.00	5502.00	189.20
5612.00	189.20	5712.00	189.00	5867.00	188.20	5947.00	189.60
6052.00	189.20	6162.00	189.40	6259.00	187.90	6364.00	186.00
6469.00	185.10	6559.00	185.10	6659.00	185.40	6724.00	185.10
6766.00	193.00	6798.00	189.50	6816.00	188.50	6832.00	189.40
6849.00	192.40	6864.00	193.25	6940.00	192.30	7032.00	191.40
7150.00	189.60	7270.00	185.00	7387.00	184.40	7487.00	183.00
7607.00	182.00	7702.00	181.40	7807.00	181.00	7907.00	179.40
7987.00	178.70	8092.00	179.90	8127.00	178.70	8207.00	177.70
8267.00	177.60	8312.00	178.70	8329.00	181.50	8347.00	191.60
8357.00	191.96	8487.00	190.10	8627.00	191.50	8755.00	191.50
8883.00	191.10	9027.00	192.40	9227.00	191.20	9242.00	187.00
9329.00	185.70	9379.00	186.50	9396.00	191.00	9409.00	185.90

(Continued)

9484.00	185.60	9497.00	191.10	9502.00	186.80	9594.00	186.20
9644.00	186.90	9664.00	185.70	9824.00	184.30	9864.00	188.90
9884.00	186.80	9927.00	188.90	10028.00	190.30	10101.00	195.10
10197.00	211.80	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.

(Continued)

0.	207.71	79.00	197.13	128.00	184.80	249.00	184.10
313.00	185.80	418.00	185.10	568.00	183.70	628.00	183.40
723.00	183.50	816.00	184.60	907.00	189.60	1013.00	190.50
1162.00	190.00	1310.00	190.20	1464.00	190.50	1642.00	189.80
1804.00	190.10	1982.00	189.60	2050.00	188.50	2051.00	188.45
2052.00	188.40	2074.00	186.40	2094.00	182.00	2130.00	176.00
2160.00	175.60	2250.00	177.00	2360.00	178.00	2425.00	178.20
2537.00	178.00	2659.00	182.00	2699.00	183.50	2729.00	181.60
2794.00	182.20	2929.00	184.40	2969.00	185.80	3064.00	190.30
3073.00	190.50	3082.00	187.30	3100.00	181.96	3160.00	170.00
3200.00	158.00	3250.00	155.00	3300.00	157.90	3370.00	156.50
3475.00	157.00	3530.00	160.40	3555.00	158.20	3640.00	162.00
3800.00	163.00	3935.00	166.00	4110.00	167.00	4220.00	168.00
4330.00	172.00	4430.00	175.00	4545.00	166.10	4610.00	168.00
4690.00	174.00	4800.00	176.30	4970.00	179.00	5100.00	180.10
5144.00	181.96	5159.00	182.50	5184.00	181.96	5216.00	177.60
5254.00	181.96	5304.00	186.90	5312.00	187.80	5332.00	185.80
5392.00	186.80	5432.00	189.00	5472.00	188.00	5502.00	189.20
5612.00	189.20	5712.00	189.00	5867.00	188.20	5947.00	189.60
6052.00	189.20	6162.00	189.40	6259.00	187.90	6364.00	186.00
6469.00	185.10	6559.00	185.10	6659.00	185.40	6724.00	185.10
6766.00	193.00	6798.00	189.50	6816.00	188.50	6832.00	189.40
6849.00	192.40	6864.00	193.25	6940.00	192.30	7032.00	191.40
7150.00	189.60	7270.00	185.00	7387.00	184.40	7487.00	183.00
7607.00	182.00	7702.00	181.40	7807.00	181.00	7907.00	179.40
7987.00	178.70	8092.00	179.90	8127.00	178.70	8207.00	177.70
8267.00	177.60	8312.00	178.70	8329.00	181.50	8347.00	191.60
8357.00	191.96	8487.00	190.10	8627.00	191.50	8755.00	191.50
8883.00	191.10	9027.00	192.40	9227.00	191.20	9242.00	187.00
9329.00	185.70	9379.00	186.50	9396.00	191.00	9409.00	185.90
9484.00	185.60	9497.00	191.10	9502.00	186.80	9594.00	186.20
9644.00	186.90	9664.00	185.70	9824.00	184.30	9864.00	188.90
9884.00	186.80	9927.00	188.90	10028.00	190.30	10101.00	195.10
10197.00	211.80	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.

(Continued)

```
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
```

5. Backwater input file (BWTRIAL):

```
      1       0       1       0       0       0       0       0       0       0
*POOL NO. 3 (BACKWATER INPUT FILE)
*    FEB 1978
*PROGRAM NO. 722-M4-058
*%CHANNEL PORTIONS WERE SURVEYED BEFORE THE 10 DEC 71 FLOOD
*THE OVERBANK PORTIONS WERE SURVEYED AFTER THE 10DEC 71 FLOOD)
Q1.     70000.  100000. 150000. 180000. 230000. 300000. 350000. 400000. 470000.
R182.0  182.0   182.0   182.0   182.0   183.2   185.4   186.7   188.0   189.6
P0.1    .00015


A72.3   1.      133.    1.      6.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C1.     1.      1.      1.      1.      1.
D192.0  192.0
E1.055
E2.1
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
G0.0    207.71  79.     197.13  128.    184.8   249.    184.1   313.    185.8
G418.   185.1   568.    183.7   628.    183.4   723.    183.5   816.    184.6
G907.   189.6   1013.   190.5   1162.   190.    1310.   190.2   1464.   190.5
G1642.  189.8   1804.   190.1   1982.   189.6   2050.   188.5   2051.   188.45
G2052.  188.4   2074.   186.4   2094.   182.    2130.   176.    2160.   175.6
G2250.  177.    2360.   178.    2425.   178.2   2537.   178.    2659.   182.
G2699.  183.5   2729.   181.6   2794.   182.2   2929.   184.4   2969.   185.8
G3064.  190.3   3073.   190.5   3082.   187.3   3100.   181.96  3160.   170.
G3200.  158.    3250.   155.    3300.   157.9   3370.   156.5   3475.   157.
G3530.  160.4   3555.   158.2   3640.   162.    3800.   163.    3935.   166.
G4110.  167.    4220.   168.    4330.   172.    4430.   175.    4545.   166.1
G4610.  168.    4690.   174.    4800.   176.3   4970.   179.    5100.   180.1
G5144.  181.96  5159.   182.5   5184.   181.96  5216.   177.6   5254.   181.5
G5304.  186.9   5312.   187.8   5332.   185.8   5392.   186.8   5432.   189.0
G5472.  188.0   5502.   189.2   5612.   189.2   5712.   189.0   5867.   188.2
```

(Continued)

```
G5947.  189.6   6052.   189.2   6162.   189.4   6259.   187.9   6364.   186.0
G6469.  185.1   6559.   185.1   6659.   185.4   6724.   185.1   6766.   193.0
G6798.  189.5   6816.   188.5   6832.   189.4   6849.   192.4   6864.   193.25
G6940.  192.3   7032.   191.4   7150.   189.6   7270.   185.0   7387.   184.4
G7487.  183.0   7607.   182.0   7702.   181.4   7207.   181.0   7907.   179.4
G7987.  178.7   8092.   179.9   8127.   178.7   8207.   177.7   8267.   177.6
G8312.  178.7   8329.   181.5   8347.   191.6   8357.   191.96  8487.   190.1
G8627.  191.5   8755.   191.5   8883.   191.1   9027.   192.40  9227.   191.2
G9242.  187.0   9329.   185.7   9379.   186.5   9396.   191.0   9409.   185.9
G9484.  185.6   9497.   191.1   9502.   186.8   9594.   186.2   9644.   186.9
G9664.  185.7   9824.   184.3   9864.   188.9   9884.   186.8   9927.   188.9
G10028. 190.3   10101.  195.1   10197.  211.8
A73.3   1.      133.    1.      6.                      1.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C5500.  5500.   5500.   5500.   5500.   5500.
D191.3  191.3
E1.055
E2.1
E3.019  470000. .021    400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
 -1.
```

6. Backwater output files:

a. Master and working header files (BWTRIAL):

```
      1       0       1       0       0       0       0       0       0       0
#POOL NO. 3 (BACKWATER INPUT FILE)
#   FEB 1978
#PROGRAM NO. 722-M4-058
#%CHANNEL PORTIONS WERE SURVEYED BEFORE THE 10 DEC 71 FLOOD
#THE OVERBANK PORTIONS WERE SURVEYED AFTER THE 10DEC 71 FLOOD3
Q1.     70000.  100000. 150000. 180000. 230000. 300000. 350000. 400000. 470000.
R182.0  182.0   182.0   182.0   182.0   183.2   185.4   186.7   188.0   189.6
P0.1    .00015


   3       39
01/15/80     01/15/80        1       26
A72.3   1.      133.    1.      6.                      E
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C1.     1.      1.      1.      1.      1.
D192.0  192.0
E1.055
E2.1
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01

01/15/80     01/15/80        2       39
A73.3   1.      133.    1.      6.                      1.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C5500.  5900.   5500.   5500.   5500.   5500.
D191.3  191.3


E1.055
E2.1
E3.019  470000. .021    400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
```

b. Master and working points files (BWTRIAL):

```
   0.     207.71    79.00   197.13   128.00   184.80   249.00   184.10
 313.00   185.80   418.00   185.10   568.00   183.70   628.00   183.40
 723.00   183.50   816.00   184.60   907.00   189.60  1013.00   190.50
1162.00   190.00  1310.00   190.20  1464.00   190.50  1642.00   189.80
1804.00   190.10  1982.00   189.60  2050.00   188.50  2051.00   188.45
2052.00   188.40  2074.00   186.40  2094.00   182.00  2130.00   176.00
2160.00   175.60  2250.00   177.00  2360.00   178.00  2425.00   178.20
2537.00   178.00  2659.00   182.00  2699.00   183.50  2729.00   181.60
2794.00   182.20  2929.00   184.40  2969.00   185.80  3064.00   190.30
3073.00   190.50  3082.00   187.30  3100.00   181.96  3160.00   170.00
```

3200.00	158.00	3250.00	155.00	3300.00	157.90	3370.00	156.50
3475.00	157.00	3530.00	160.40	3555.00	158.20	3640.00	162.00
3800.00	163.00	3935.00	166.00	4110.00	167.00	4220.00	168.00
4330.00	172.00	4430.00	175.00	4545.00	166.10	4610.00	168.00
4690.00	174.00	4800.00	176.30	4970.00	179.00	5100.00	180.10
5144.00	181.96	5159.00	182.50	5184.00	181.96	5216.00	177.60
5254.00	181.96	5304.00	186.90	5312.00	187.80	5332.00	185.80
5392.00	186.80	5432.00	189.00	5472.00	188.00	5502.00	189.20
5612.00	189.20	5712.00	189.00	5867.00	188.20	5947.00	189.60
6052.00	189.20	6162.00	189.40	6259.00	187.90	6364.00	186.00
6469.00	185.10	6559.00	185.10	6659.00	185.40	6724.00	185.10
6766.00	193.00	6798.00	189.50	6816.00	188.50	6832.00	189.40
6849.00	192.40	6864.00	193.25	6940.00	192.30	7032.00	191.40
7150.00	189.60	7270.00	185.00	7387.00	184.40	7487.00	183.00
7607.00	182.00	7702.00	181.40	7807.00	181.00	7907.00	179.40
7987.00	178.70	8092.00	179.90	8127.00	178.70	8207.00	177.70
8267.00	177.60	8312.00	178.70	8329.00	181.50	8347.00	191.60
8357.00	191.96	8487.00	190.10	8627.00	191.50	8755.00	191.50
8883.00	191.10	9027.00	192.40	9227.00	191.20	9242.00	187.00
9329.00	185.70	9379.00	186.50	9396.00	191.00	9409.00	185.90
9484.00	185.60	9497.00	191.10	9502.00	186.80	9594.00	186.20
9644.00	186.90	9664.00	185.70	9824.00	184.30	9864.00	188.90
9854.00	186.80	9927.00	188.90	10028.00	190.30	10101.00	195.10
10197.00	211.80	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.

(Continued)

0.	207.71	79.00	197.13	128.00	184.80	249.00	184.10
313.00	185.80	418.00	185.10	568.00	183.70	628.00	183.40
723.00	183.50	816.00	184.60	907.00	189.60	1013.00	190.50
1162.00	190.00	1310.00	190.20	1464.00	190.50	1642.00	189.80
1804.00	190.10	1982.00	189.60	2050.00	188.50	2051.00	188.45
2052.00	188.40	2074.00	186.40	2094.00	182.00	2130.00	176.00
2160.00	175.60	2250.00	177.00	2360.00	178.00	2425.00	178.20
2537.00	178.00	2659.00	182.00	2699.00	183.50	2729.00	181.60
2794.00	182.20	2929.00	184.40	2969.00	185.80	3064.00	190.30
3073.00	190.50	3082.00	187.30	3100.00	181.96	3160.00	170.00
3200.00	158.00	3250.00	155.00	3300.00	157.90	3370.00	156.50
3475.00	157.00	3530.00	160.40	3555.00	158.20	3640.00	162.00
3800.00	163.00	3935.00	166.00	4110.00	167.00	4220.00	168.00
4330.00	172.00	4430.00	175.00	4545.00	166.10	4610.00	168.00
4690.00	174.00	4800.00	176.30	4970.00	179.00	5100.00	180.10
5144.00	181.96	5159.00	182.50	5184.00	181.96	5216.00	177.60
5254.00	181.96	5304.00	186.90	5312.00	187.80	5332.00	185.80
5392.00	186.80	5432.00	189.00	5472.00	188.00	5502.00	189.20
5612.00	189.20	5712.00	189.00	5867.00	188.20	5947.00	189.60
6052.00	189.20	6162.00	189.40	6259.00	187.90	6364.00	186.00
6469.00	185.10	6559.00	185.10	6659.00	185.40	6724.00	185.10
6766.00	193.00	6798.00	189.50	6816.00	188.50	6832.00	189.40
6849.00	192.40	6864.00	193.25	6940.00	192.30	7032.00	191.40
7150.00	189.60	7270.00	185.00	7387.00	184.40	7487.00	183.00
7607.00	182.00	7702.00	181.40	7807.00	181.00	7907.00	179.40
7987.00	178.70	8092.00	179.90	8127.00	178.70	8207.00	177.70
8267.00	177.60	8312.00	178.70	8329.00	181.50	8347.00	191.60
8357.00	191.96	8487.00	190.10	8627.00	191.50	8755.00	191.50
8883.00	191.10	9027.00	192.40	9227.00	191.20	9242.00	187.00
9329.00	185.70	9379.00	186.50	9396.00	191.00	9409.00	185.90
9484.00	185.60	9497.00	191.10	9502.00	186.80	9594.00	186.20
9644.00	186.90	9664.00	185.70	9824.00	184.30	9864.00	188.90
9884.00	186.80	9927.00	188.90	10028.00	190.30	10101.00	195.10
10197.00	211.80	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.

(Continued)

```
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
0.      0.      0.      0.      0.      0.      0.      0.
```

7. Boat tape from all points input file (BTTRIAL):

```
        1       0       1       0       0       0       0       0       0       0
*POOL NO. 3 (BOAT TAPE FROM ALL POINTS INPUT FILE)
*    FEB 1978
*PROGRAM NO. 722-M4-05B
*%CHANNEL PORTIONS WERE SURVEYED BEFORE THE 10 DEC 71 FLOOD
*THE OVERBANK PORTIONS WERE SURVEYED AFTER THE 10DEC 71 FLOOD]
Q1.     70000.  100000. 150000. 180000. 230000. 300000. 350000. 400000. 470000.
R182.0  182.0   182.0   182.0   182.0   183.2   185.4   186.7   188.0   189.6
P0.1    .00015


A72.3   1.      133.    1.      6.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C1.     1.      1.      1.      1.      1.
D192.0  192.0
E1.055
E2.1
E3.019  470000. .02     400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
G0.0    207.71  79.     197.13  128.    184.8   249.    184.1   313.    185.8
G418.   185.1   568.    183.7   628.    183.4   723.    183.5   816.    184.6
G907.   189.6   1013.   190.5   1162.   190.    1310.   190.2   1464.   190.5
G1642.  189.8   1804.   190.1   1982.   189.6   2050.   188.5   2051.   188.45
G2052.  188.4   2074.   186.4   2094.   182.    2130.   176.    2160.   175.6
G2250.  177.    2360.   178.    2425.   178.2   2537.   178.    2659.   182.
G2699.  183.5   2729.   181.6   2794.   182.2   2929.   184.4   2969.   185.8
G3064.  190.3   3073.   190.5   3082.   187.3   3100.   181.96  3160.   170.
G3200.  158.    3250.   155.    3300.   157.9   3370.   156.5   3475.   157.
G3530.  160.4   3555.   158.2   3640.   162.    3800.   163.    3935.   166.
G4110.  167.    4220.   168.    4330.   172.    4430.   175.    4545.   166.1
G4610.  168.    4690.   174.    4800.   176.3   4970.   179.    5100.   180.1
G5144.  181.96  5159.   182.5   5184.   181.96  5216.   177.6   5254.   181.96
G5304.  186.9   5312.   187.8   5332.   185.8   5392.   186.8   5432.   189.0
G5472.  188.0   5502.   189.2   5612.   189.2   5712.   189.0   5867.   188.2
```

(Continued)

```
G5947.  189.6   6052.   189.2   6162.   189.4   6259.   187.9   6364.   186.0
G6469.  185.1   6559.   185.1   6659.   185.4   6724.   185.1   6766.   193.0
G6799.  189.5   6816.   188.5   6832.   189.4   6849.   192.4   6864.   193.25
G6940.  192.3   7032.   191.4   7150.   189.6   7270.   185.0   7387.   184.4
G7487.  183.0   7607.   182.0   7702.   181.4   7807.   181.0   7907.   179.4
G7987.  178.7   8092.   179.9   8127.   178.7   8207.   177.7   8267.   177.6
G8312.  178.7   8329.   181.5   8347.   191.6   8357.   191.96  8487.   190.1
G8627.  191.5   8755.   191.5   8883.   191.1   9027.   192.40  9227.   191.2
G9242.  187.0   9329.   185.7   9379.   186.5   9396.   191.0   9409.   185.9
G9484.  185.6   9497.   191.1   9502.   186.8   9594.   186.2   9644.   186.9
G9664.  185.7   9824.   184.3   9864.   188.9   9884.   186.8   9927.   188.9
G10028. 190.3   10101.  195.1   10197.  211.8
A73.3   1.      133.    1.      6.                      1.
B2600.  3070.   3900.   5200.   6700.   10197.                          3900.
C5500.  5500.   5500.   5500.   5500.   5500.
D191.3  191.3
E1.055
E2.1
E3.019  470000. .021    400000. .021    300000. .023    180000. .025    70000.
E4.05
E5.055
E6.01
 -1.
```

8. Boat tape from all points output files:

a. Master and working header files (BTTRIAL):

```
   3        6
01/15/80    01/15/80        1       4
A73.3   1.      133.    1.      6.
01/15/80    01/15/80        2       6
A73.3   1.      133.    1.      6.                      1.
```

b. Master and working points files (BTTRIAL):

```
    0.    207.71    79.00   197.13   128.00   184.80   249.00   184.10
  313.00  185.80   418.00   185.10   568.00   183.70   628.00   183.40
  723.00  183.50   816.00   184.60   907.00   189.60  1013.00   190.50
 1162.00  190.00  1310.00   190.20  1464.00   190.50  1642.00   189.80
 1804.00  190.10  1982.00   189.60  2050.00   188.50  2051.00   188.45
 2052.00  188.40  2074.00   186.40  2094.00   182.00  2130.00   176.00
 2160.00  175.60  2250.00   177.00  2360.00   178.00  2425.00   178.20
 2537.00  178.00  2659.00   182.00  2699.00   183.50  2729.00   181.60
 2794.00  182.20  2929.00   184.40  2969.00   185.80  3064.00   190.30
 3073.00  190.50  3082.00   187.30  3100.00   181.96  3160.00   170.00
 3200.00  158.00  3250.00   155.00  3300.00   157.90  3370.00   156.50
 3475.00  157.00  3530.00   160.40  3555.00   158.20  3640.00   162.00
 3800.00  163.00  3935.00   166.00  4110.00   167.00  4220.00   168.00
 4330.00  172.00  4430.00   175.00  4545.00   166.10  4610.00   168.00
 4690.00  174.00  4800.00   176.30  4970.00   179.00  5100.00   180.10
 5144.00  181.96  5159.00   182.50  5184.00   181.96  5216.00   177.60
 5254.00  181.96  5304.00   186.90  5312.00   187.80  5332.00   185.80
 5392.00  186.80  5432.00   189.00  5472.00   188.00  5502.00   189.20
 5612.00  189.20  5712.00   189.00  5867.00   188.20  5947.00   189.60
 6052.00  189.20  6162.00   189.40  6259.00   187.90  6364.00   186.00
 6469.00  185.10  6559.00   185.10  6659.00   185.40  6724.00   185.10
 6766.00  193.00  6798.00   189.50  6816.00   188.50  6832.00   189.40
 6849.00  192.40  6864.00   193.25  6940.00   192.30  7032.00   191.40
 7150.00  189.60  7270.00   185.00  7387.00   184.40  7487.00   183.00
 7607.00  182.00  7702.00   181.40  7807.00   181.00  7907.00   179.40
 7987.00  178.70  8092.00   179.90  8127.00   178.70  8207.00   177.70
 8267.00  177.60  8312.00   178.70  8329.00   181.50  8347.00   191.60
 8357.00  191.96  8487.00   190.10  8627.00   191.50  8755.00   191.50
 8883.00  191.10  9027.00   192.40  9227.00   191.20  9242.00   187.00
 9329.00  185.70  9379.00   186.50  9396.00   191.00  9409.00   185.90
```

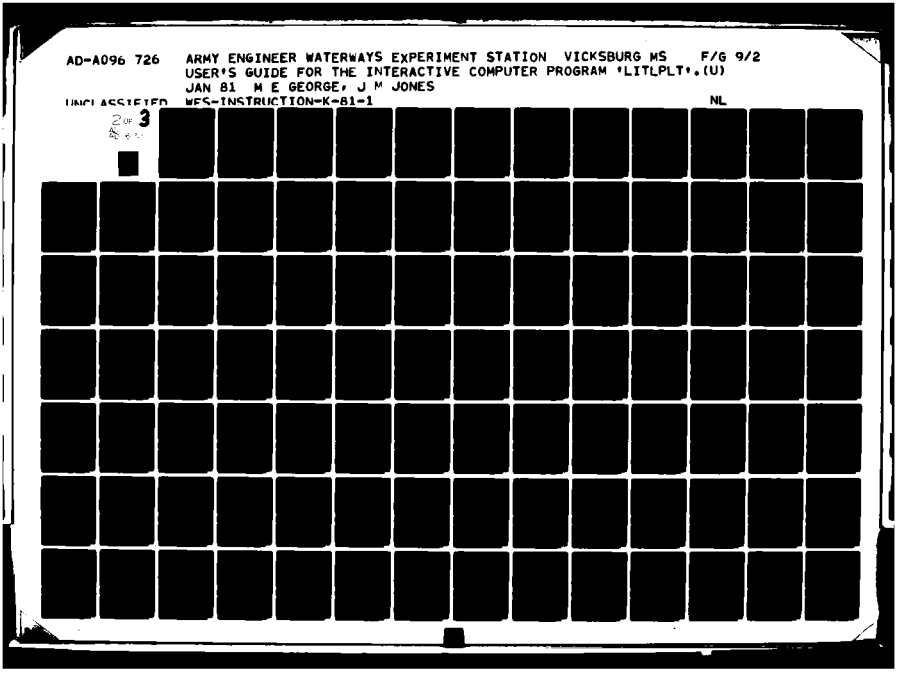
(Continued)

9484.00	185.60	9497.00	191.10	9502.00	186.80	9594.00	186.20
9644.00	186.90	9664.00	185.70	9824.00	184.30	9864.00	188.90
9884.00	186.80	9927.00	188.90	10028.00	190.30	10101.00	195.10
10197.00	211.80	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.

0.	207.71	79.00	197.13	128.00	184.80	249.00	184.10
313.00	185.80	418.00	185.10	568.00	183.70	628.00	183.40
723.00	183.50	816.00	184.60	907.00	189.60	1013.00	190.50
1162.00	190.00	1310.00	190.20	1464.00	190.50	1642.00	189.80
1804.00	190.10	1982.00	189.60	2050.00	188.50	2051.00	188.45
2052.00	188.40	2074.00	186.40	2094.00	182.00	2130.00	176.00
2160.00	175.60	2250.00	177.00	2360.00	178.00	2425.00	178.20
2537.00	178.00	2659.00	182.00	2699.00	183.50	2729.00	181.60
2794.00	182.20	2929.00	184.40	2989.00	185.80	3064.00	190.30
3073.00	190.50	3082.00	187.30	3100.00	181.96	3160.00	170.00
3200.00	158.00	3250.00	155.00	3300.00	157.90	3370.00	156.50
3475.00	157.00	3530.00	160.40	3555.00	158.20	3640.00	162.00
3800.00	163.00	3935.00	166.00	4110.00	167.00	4220.00	168.00
4330.00	172.00	4430.00	175.00	4545.00	166.10	4610.00	168.00
4690.00	174.00	4800.00	176.30	4970.00	179.00	5100.00	180.10
5144.00	181.96	5159.00	182.50	5184.00	181.96	5216.00	177.60
5254.00	181.96	5304.00	186.90	5312.00	187.80	5332.00	185.80
5392.00	186.80	5432.00	189.00	5472.00	188.00	5502.00	189.20
5612.00	189.20	5712.00	189.00	5867.00	188.20	5947.00	189.60
6052.00	189.20	6162.00	189.40	6259.00	187.90	6364.00	186.00
6469.00	185.10	6559.00	185.10	6659.00	185.40	6724.00	185.10
6766.00	193.00	6798.00	189.50	6816.00	188.50	6832.00	189.40

(Continued)

6849.00	192.40	6864.00	193.25	6940.00	192.30	7032.00	191.40
7150.00	189.60	7270.00	185.00	7387.00	184.40	7487.00	183.00
7607.00	182.00	7702.00	181.40	7807.00	181.00	7907.00	179.40
7987.00	178.70	8092.00	179.90	8127.00	178.70	8207.00	177.70
8267.00	177.60	8312.00	178.70	8329.00	181.50	8347.00	191.60
8357.00	191.96	8487.00	190.10	8627.00	191.50	8755.00	191.50
8883.00	191.10	9027.00	192.40	9227.00	191.20	9242.00	187.00
9329.00	185.70	9379.00	186.50	9396.00	191.00	9409.00	185.90
9484.00	185.60	9497.00	191.10	9502.00	186.80	9594.00	186.20
9644.00	186.90	9664.00	185.70	9824.00	184.30	9864.00	188.90
9884.00	186.80	9927.00	188.90	10028.00	190.30	10101.00	195.10
10197.00	211.80	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.


AD-A096 726
ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/G 9/2
USER'S GUIDE FOR THE INTERACTIVE COMPUTER PROGRAM 'LITLPLT'.(U)
JAN 81 M E GEORGE, J M JONES
UNCLASSIFIED WES-INSTRUCTION-K-81-1 NL
2 OF 3

APPENDIX B: EXAMPLE PROBLEM

1. This example problem illustrates only one usage of program LITLPLT. This particular problem allows the user to establish an all points data base from an input file used for program LRD-I (AP01X08X). The boat tape data base BT1 is created by using the actual boat tape information and the quick sketch plots which accompany the tapes. The user then displays the original ranges and the new boat tape information on the same plot. A decision is reached to replace the new boat tape data into the all points data for all ranges in the data base. A permanent update is then executed. The result gives the user a current all points data base to then work with. The user next creates a backwater data base from the original all points input file (BW01X08X). This is done to establish an original backwater data base exactly similar to the all points data base. Then, the user modifies each backwater range to be exactly like the current modified all points range. A deck is then created for use in program LRD-I. Thus, a comparison of results will be obtained from running the original backwater deck (BW01X08X) and the revised backwater deck (BW01X) in program LRD-I. Hence, the user establishes direct comparisons between the original channel data and the revised channel data for each range in the particular data base.

Input file to create all points data base (AP01X08X)

```
OLD AP01X08X
*LIST

      1       0       1
* TEST PROBLEM FOR HSTAR63,,BW01X08X,,
* POOL-11908 RESURVEY TO BE UPDATED WITH 1980 RESURVEY
* USED 6 RANGES WITH THE 2ND & LAST RANGES AS REPEATS OF THE
* 1ST & 5TH
* MARCH 1980 GET
Q1000.
R160.
P.1     .0003


A10.0   1.      9.              3.
B500.   700.    1600.                                                   700.
C1.     1.      1.                                      123     123
E1.1
E2.04   1000.   .06     1.
E3.08
G0.     170.    300.    169.    500.    167.    550.    155.    650.    150.
G700.   163.    1000.   165.    1300.   166.    1600.   167.
A10.1   1.      9.              3.              1.
B500.   700.    1600.                                                   700.
C10000. 10000.  10000.                          123     123
E1.1
E2.04   1000.   .06     1.
E3.08
A11.0   1.      21.             3.
B600.   850.    1600.                                                   850.
C10000. 10000.  10000.
E1.1
E2.04   1000.   .06     1.
E3.08
G0.     173.    200.    170.    250.    168.    300.    170.    350.    168.
G400.   170.    450.    168.    500.    170.    550.    168.    600.    170.
G700.   153.    800.    154.    850.    170.    900.    168.    950.    170.
G1000.  168.    1050.   170.    1100.   168.    1150.   170.    1200.   168.
```

Input file to create all points data base (Continued)

```
G1600.  172.5
A12.0   1.      7.              3.
B400.   700.    1600.                                                   700.
C10000. 10000.  10000.
E1.1
E2.04   1000.   .06     1.
E3.08
G0.     177.    200.    170.    400.    168.5   500.    157.    600.    160.
G700.   175.    1600.   177.5
A13.0   1.      14.             3.
B600.   850.    1600.                                                   850.
C10000. 10000.  10000.                                  123     123
E1.1
E2.04   1000.   .06
E3.08
G0.     180.    200.    179.    250.    177.5   300.    179.    350.    177.5
G400.   179.    450.    177.5   500.    179.    550.    177.5   600.    179.
G650.   160.    800.    165.    850.    175.    1600.   177.5
A13.1   1.      14.             3.                      1.
B600.   850.    1600.                                                   850.
C10000. 10000.  10000.                                  123     123
E1.1
E2.04   1000.   .06     1.
E3.08
  -1.
```

*

Creating all points data base from AP01X08X

```
REMO CLEARFILES
*RUNH HSTAR63

        03/27/80    16.322

DO YOU WANT TO CREATE NEW DATABASES (Y OR N)?
*Y

ARE YOU INPUTTING BOAT TAPE DATA (TYPE - 1)
                  ALL POINTS DATA(TYPE - 2)
                  BACKWATER DATA (TYPE - 3)
                  CREATE FILE ONLY (TYPE - 4)
                  BOAT TAPE FROM ALLPTS (TYPE - 5)
INPUT YOUR CHOICE?
*2

ALL POINTS INFORMATION

ENTER INPUT FILE NAME?
*AP01X08X
DO YOU WANT TO VIEW ALL CARDS(Y OR N)?
*N

A10.0   1.      9.              3.

A10.1   1.      9.              3.                      1.

A11.0   1.      21.             3.

A12.0   1.      7.              3.

A13.0   1.      14.             3.

A13.1   1.      14.             3.                      1.

*****************************
PROGRAM IS EXITTED NORMALLY
*****************************
```

```
DO YOU WANT TO EXERCISE PLOT OPTIONS (Y OR N)?
*Y
****************************************

PLOT PROGRAM FOR LITTLE ROCK DISTRICT

****************************************

INPUT THE BAUD RATE YOU ARE USING
TYPE IN EITHER 300 OR 1200?
*1200
ENTER ALL POINTS FILE NAME
*AP01X08X

ENTER BACKWATER FILE NAME
*

ENTER BOATTAPE FILE NAME
*

ALL FILES ATTACHED!!.
```

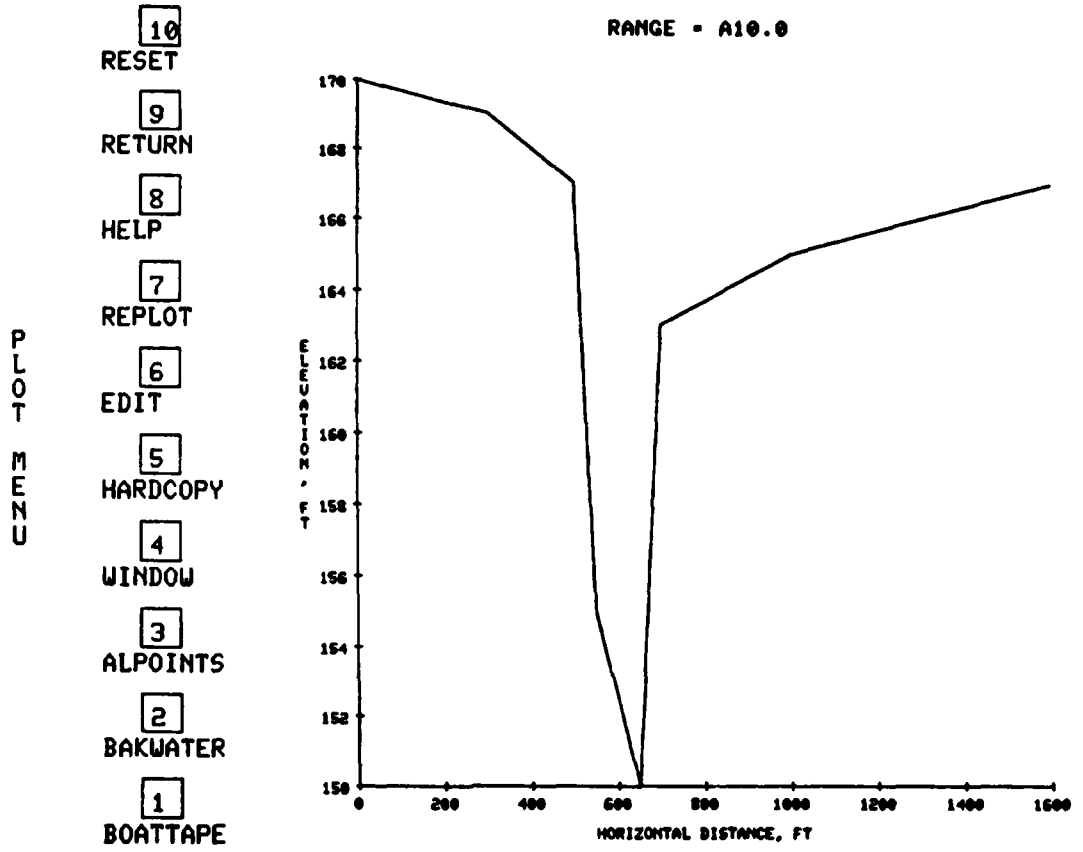
Selecting a range to be displayed
Listing the working header file for the
all points data base

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
*YES
```

Selecting range A10.0 to be displayed

```
                    ALLPOINTS HEADER FILE

          RANGE          DATE CREATED      DATE CHANGED

          A10.0            03/27/80          03/27/80
          A10.1            03/27/80          03/27/80
          A11.0            03/27/80          03/27/80
          A12.0            03/27/80          03/27/80
          A13.0            03/27/80          03/27/80
          A13.1            03/27/80          03/27/80

SELECT A RANGE TO BE DISPLAYED
=A10.0
ALL POINTS
RANGE A10.0    WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
■
```

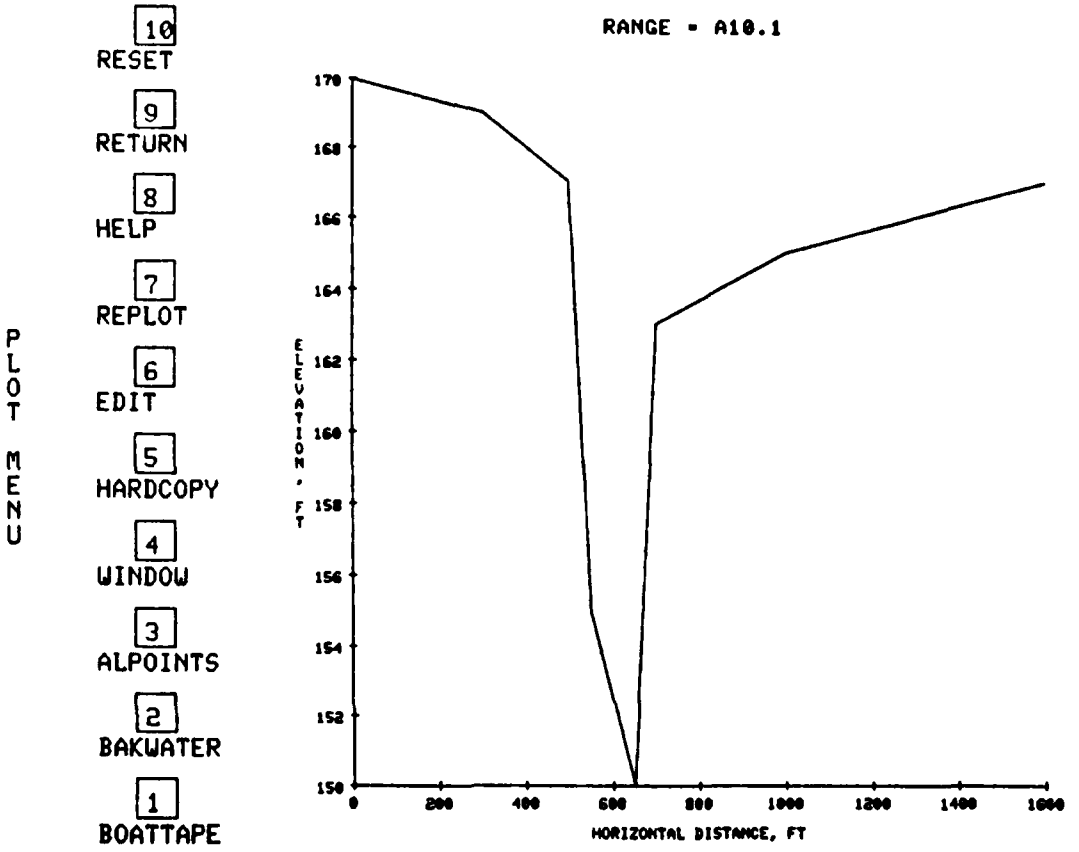
Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu



Selecting the RETURN option from the PLOT menu
Selecting the NEWRANGE option from the MAIN menu
Selecting range A10.1 to be displayed

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
*N

SELECT A RANGE TO BE DISPLAYED
*A10.1
ALL POINTS
RANGE A10.1     WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
*
```

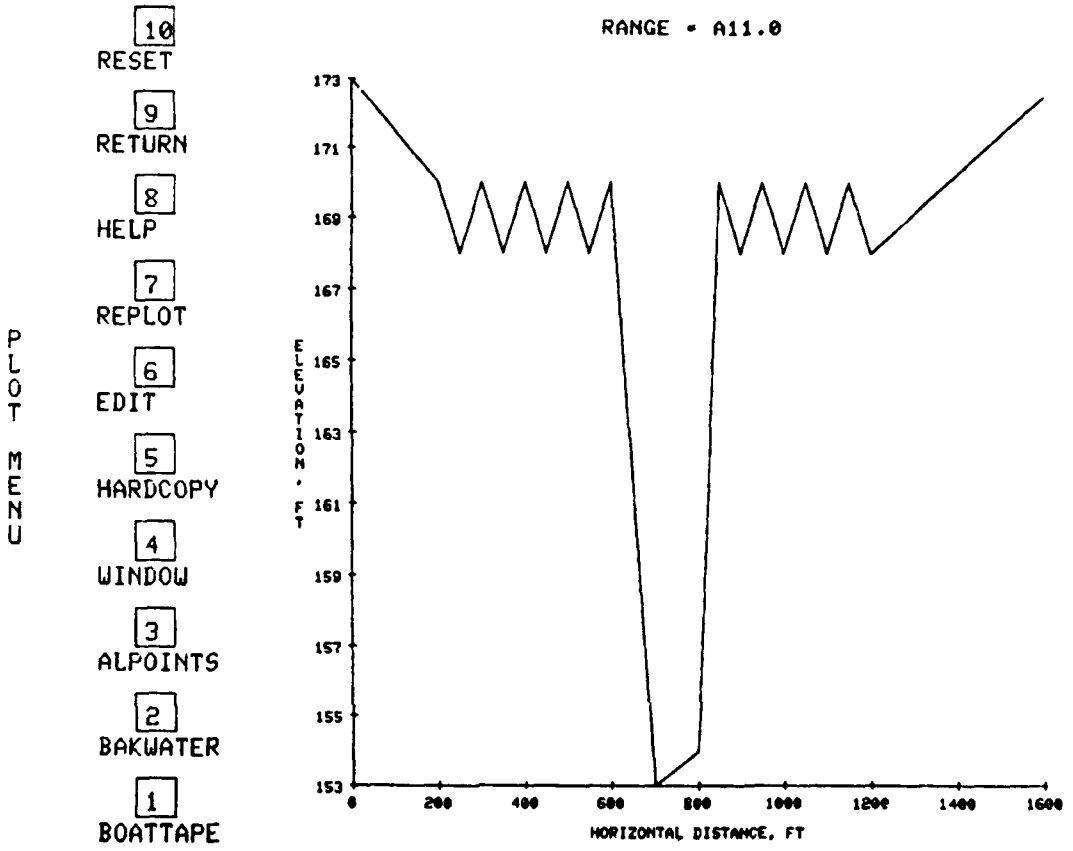
Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu



Selecting the RETURN option from the PLOT menu
Selecting the NEWRANGE option from the MAIN menu
Selecting range A11.0 to be displayed

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
*N

SELECT A RANGE TO BE DISPLAYED
*A11.0
ALL POINTS
RANGE A11.0     WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
*
```

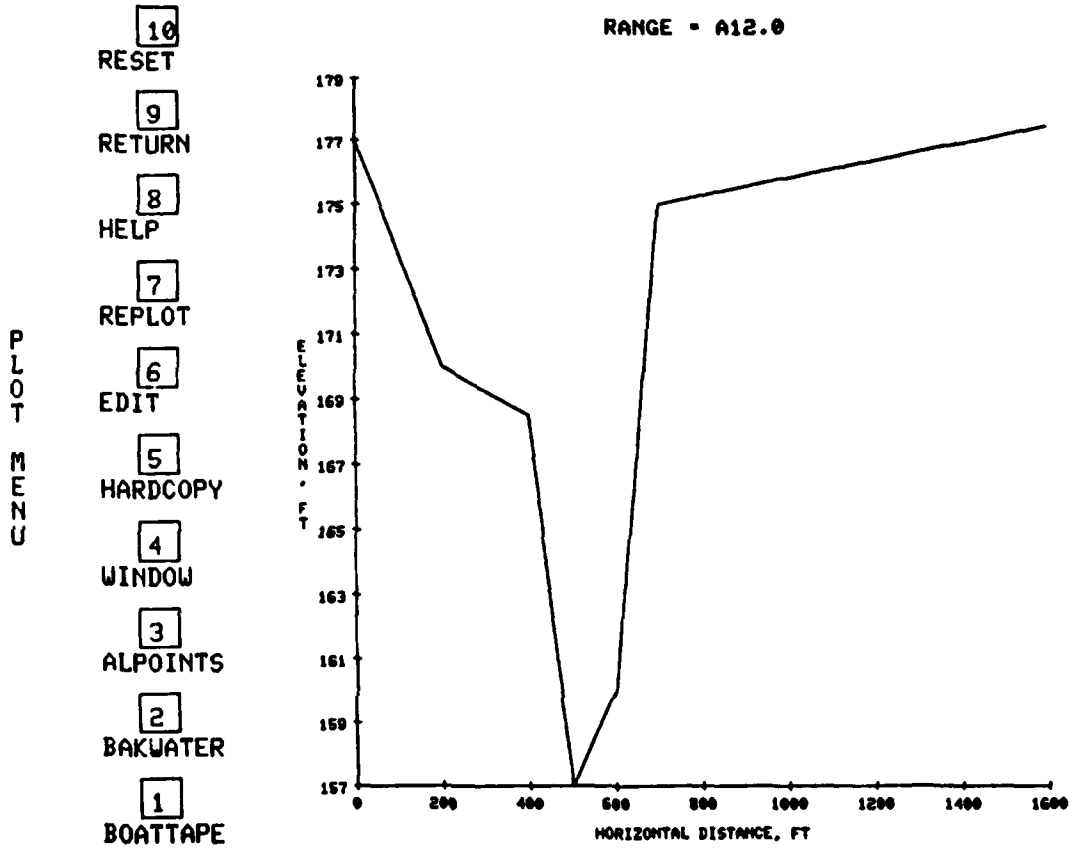
Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu



Selecting the RETURN option from the PLOT menu
Selecting the NEWRANGE option from the MAIN menu
Selecting range A12.0 to be displayed

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=N

SELECT A RANGE TO BE DISPLAYED
=A12.0
ALL POINTS
RANGE A12.0    WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=
```

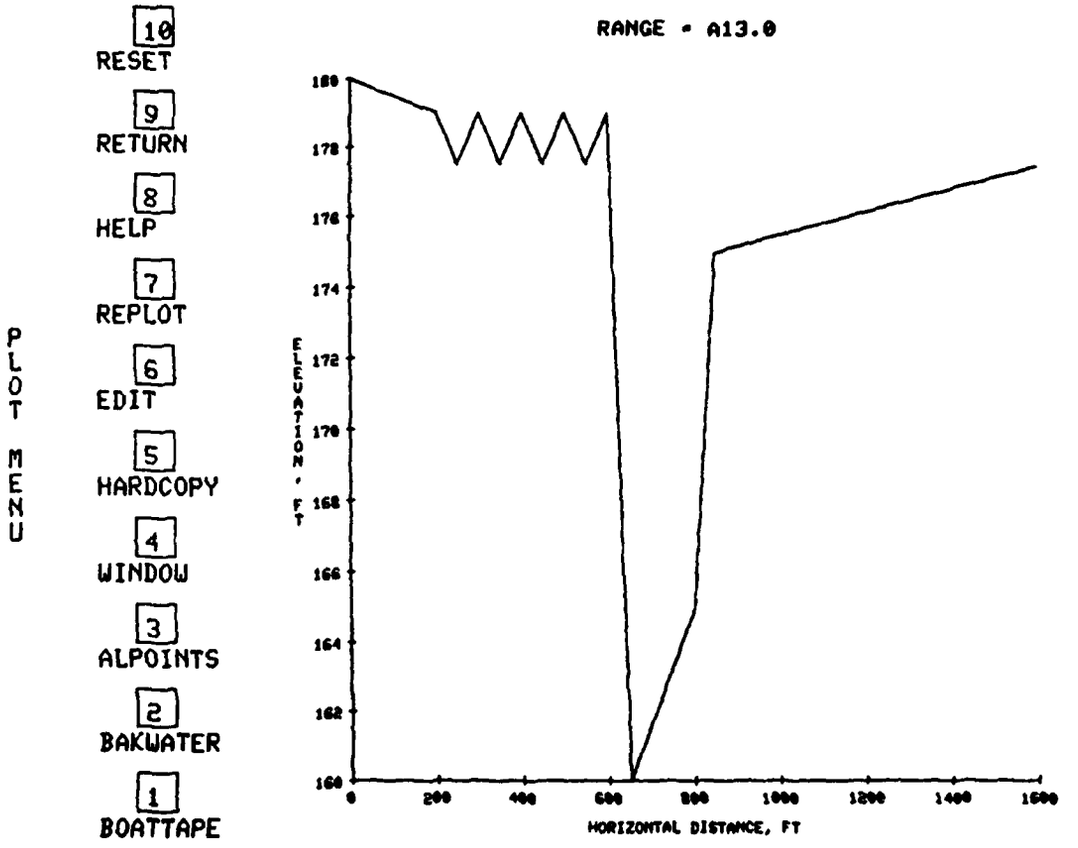
Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu



Selecting the RETURN option from the PLOT menu
Selecting the NEWRANGE option from the MAIN menu
Selecting range A13.0 to be displayed

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
*N

SELECT A RANGE TO BE DISPLAYED
*A13.0
ALL POINTS
RANGE A13.0     WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
*
```

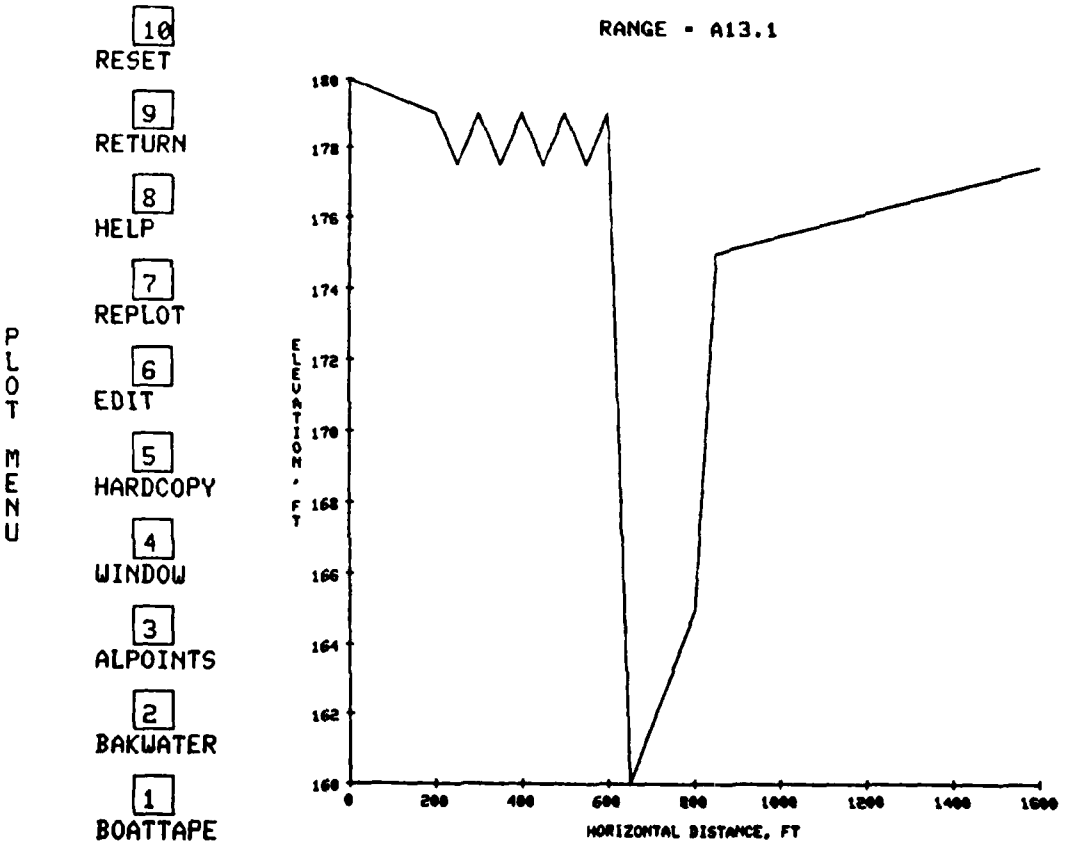
Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu



Selecting the RETURN option from the PLOT menu
Selecting the NEWRANGE option from the MAIN menu
Selecting range A13.1 to be displayed

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=N

SELECT A RANGE TO BE DISPLAYED
=A13.1
ALL POINTS
RANGE A13.1     WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=
```

Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu



Selecting the RETURN option from the PLOT menu
Selecting the QUIT option from the MAIN menu

```
PROGRAM IS EXITTED
```

Executing the program again attaching the all points data base (AP01X08X) and the boat tape data base (BT1). File BT1 has been created previously

```
REMO CLEARFILES
*RUNH HSTAR63

        03/27/80    16.498

DO YOU WANT TO CREATE NEW DATABASES (Y OR N)?
=N
*****************************************

PLOT PROGRAM FOR LITTLE ROCK DISTRICT

*****************************************

INPUT THE BAUD RATE YOU ARE USING
TYPE IN EITHER 300 OR 1200?
=1200
ENTER ALL POINTS FILE NAME
=AP01X08X

ENTER BACKWATER FILE NAME
=

ENTER BOATTAPE FILE NAME
=BT1

ALL FILES ATTACHED!!.
```

Listing the boat tape working header file to view the ranges available

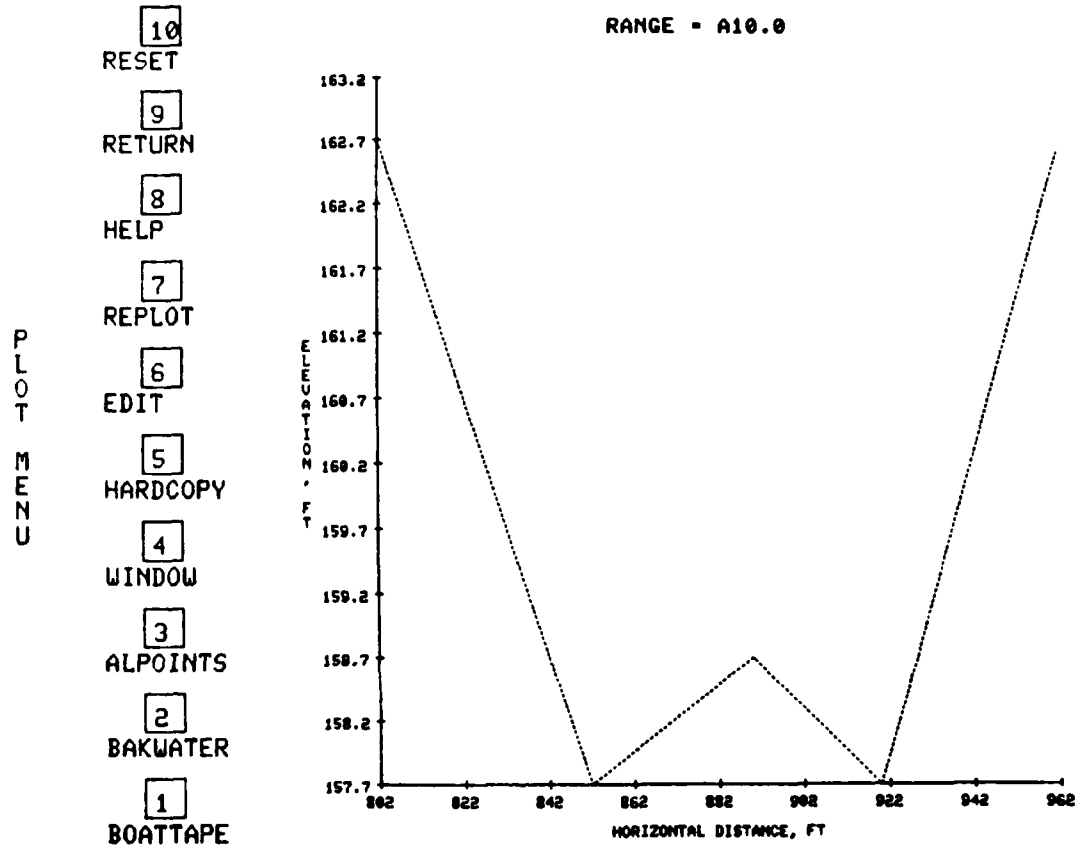
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=YES

Selecting range A10.0 to be displayed

```
                    BOAT TAPE HEADER FILE

          RANGE          DATE CREATED      DATE CHANGED

          A000.0           03/19/80          03/19/80
          A10.0            03/19/80          03/19/80
          A11.0            03/19/80          03/19/80
          A12.0            03/19/80          03/19/80
          A13.0            03/19/80          03/19/80

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=N

SELECT A RANGE TO BE DISPLAYED
=A10.0
BOAT TAPE
RANGE A10.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
ALL POINTS
RANGE A10.0     WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=
```

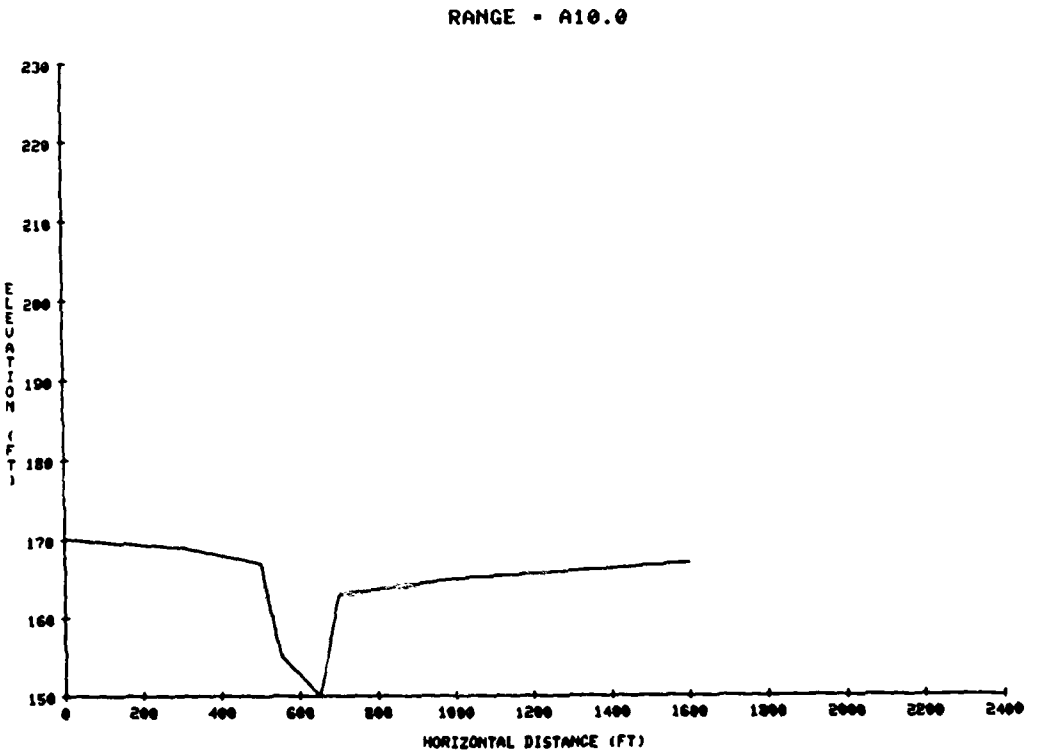
Selecting the TICPLOT option from the MAIN menu
Selecting the BOATTAPE option from the PLOT menu



Selecting the HARDCOPY option from the PLOT menu
Interactively responding to the appropriate questions
in the HARDCOPY option of the program

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.


ALL POINTS DATA SELECTED

ENTER STARTING STATION VALUE (FT)?
•0
ENTER STARTING ELEVATION VALUE (FT)?
•150
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
•2
```

HARDCOPY plot of the master points for range A10.0 (solid) and the current working points for range A10.0 (dashed). At this point, both coincide

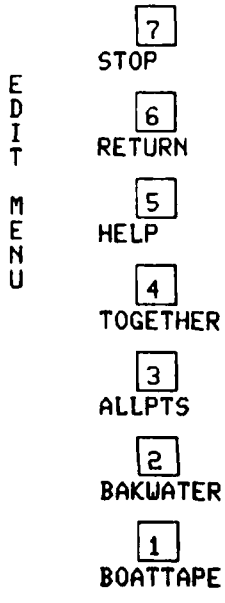


Respond with an 'N' to the question:

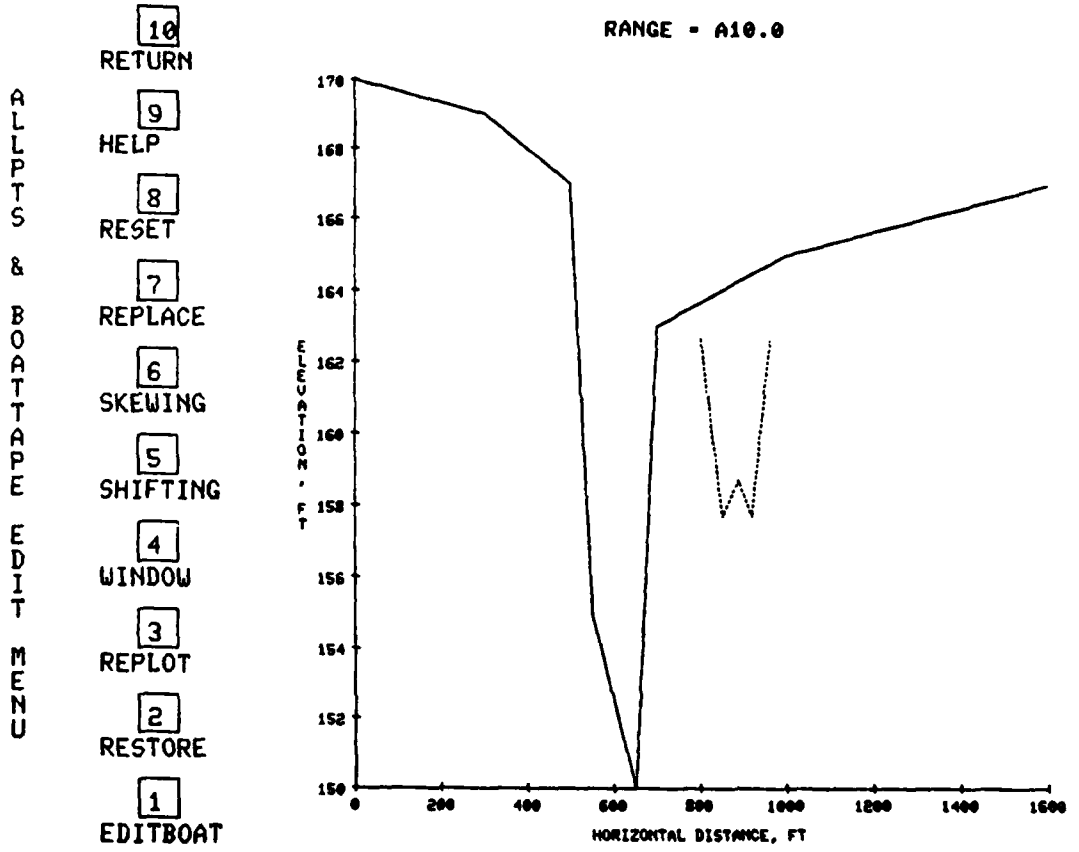
```
DO YOU WANT ANOTHER PLOT (Y OR N)
= N
```

Screen is erased and return is transferred back to the PLOT menu.

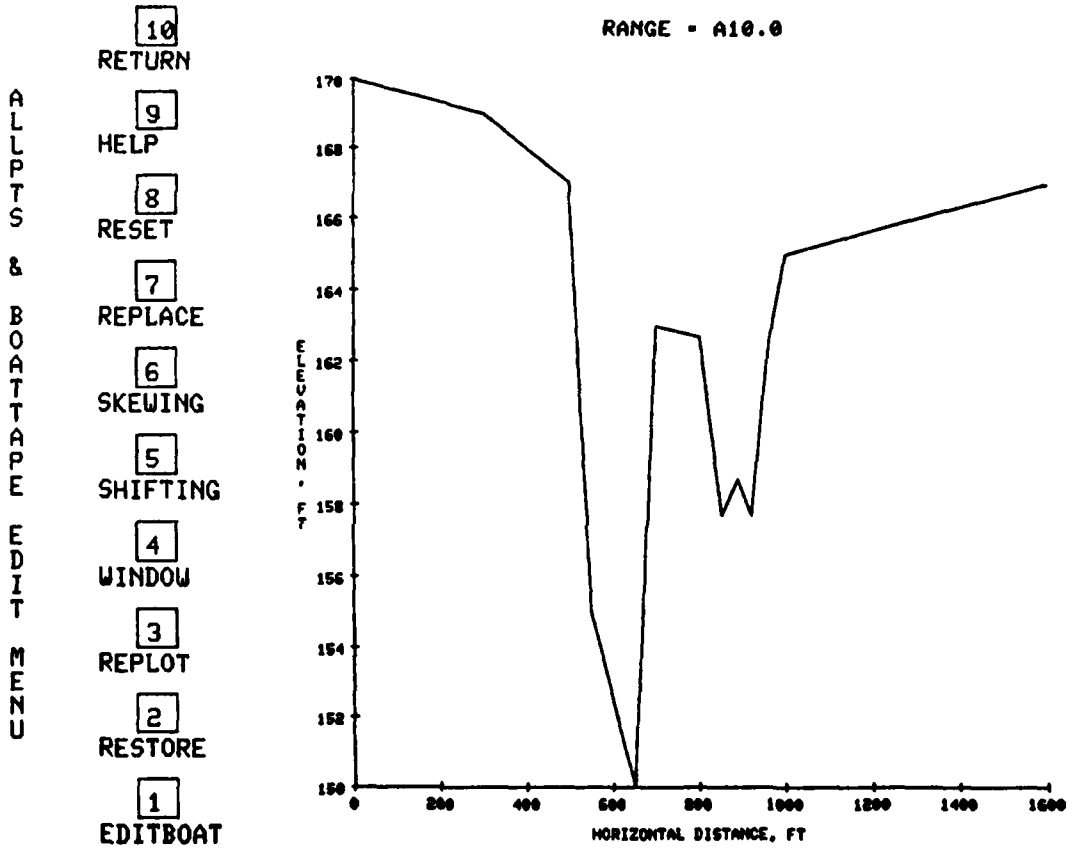
Select the EDIT option from the PLOT menu
Select the TOGETHER option from the EDIT menu to display the boat tape data with the all points data for range A10.0



Selecting the REPLACE option from the ALLPTS & BOATTAPE EDIT menu



Selecting the REPLOT option from the ALLPTS & BOATTAPE EDIT menu
This is a plot of the revised range A10.0 for the all points
data base. To update, return to the MAIN menu
Selecting the RETURN option from the ALLPTS & BOATTAPE EDIT menu
Selecting the RETURN option from the EDIT menu
Selecting the RETURN option from the PLOT menu
Selecting the UPDATE option from the MAIN menu



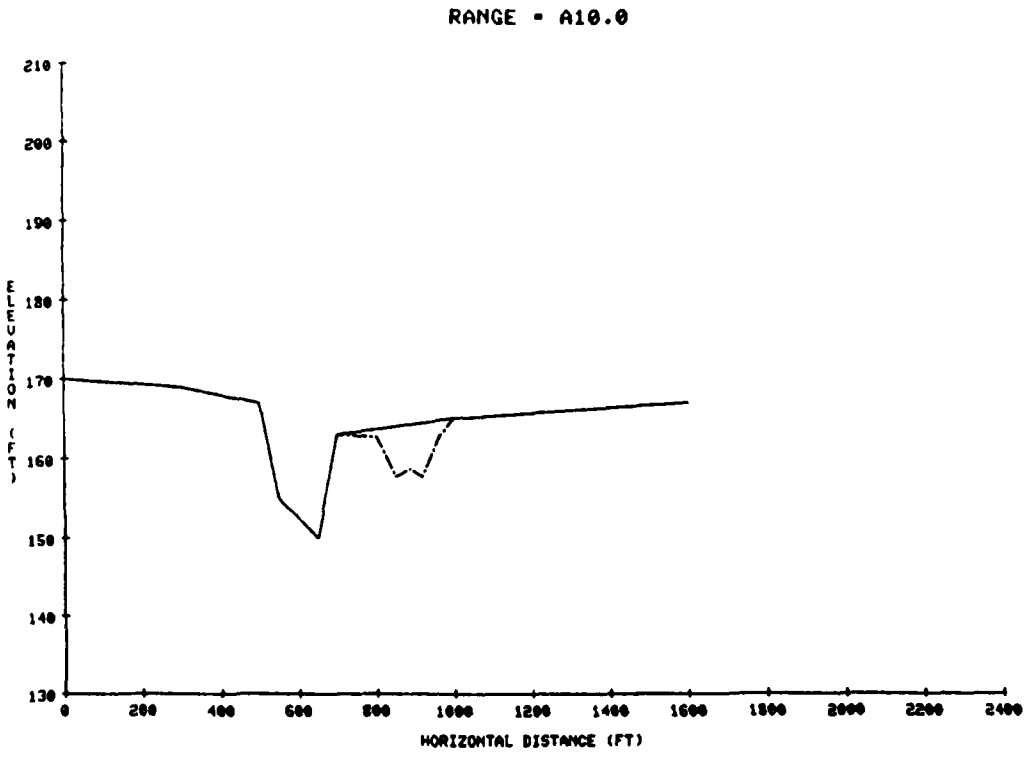
Updating the all points and boattape data bases
for range A10.0

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
*Y

ALLPTS FILES UPDATED FOR RANGE A10.0

FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BOATTAPE PTS AND
HEADER FILES?
*Y

BOATTAPE FILES UPDATED FOR RANGE A10.0
```

Selecting the HARDCOPY option from the MAIN menu
Plotting the current range A10.0 versus the original range. The original range is solid and the current is dashed

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.


ALL POINTS DATA SELECTED

ENTER STARTING STATION VALUE (FT)?
•0
ENTER STARTING ELEVATION VALUE (FT)?
•130
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
•2
```

HARDCOPY plot of original versus current range for A10.0



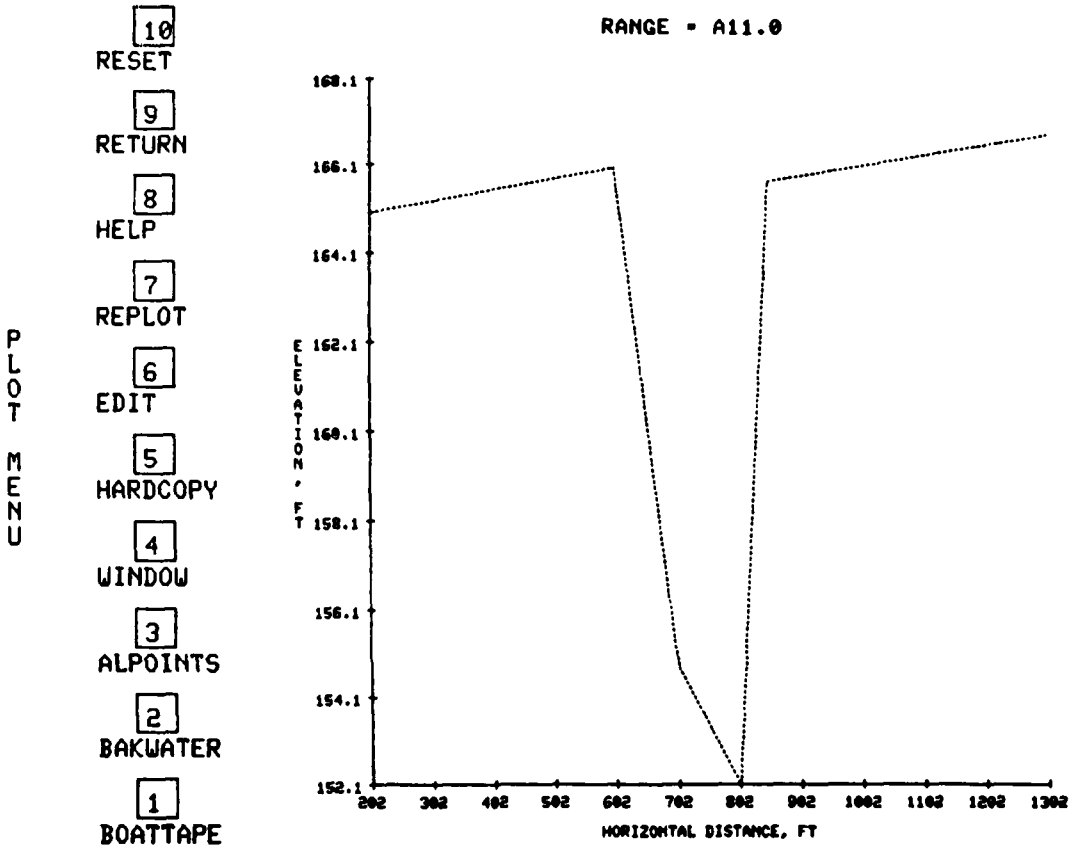
Respond with an 'N' to the question:

DO YOU WANT ANOTHER PLOT (Y OR N)
= N

Selecting the NEWRANGE option from the MAIN menu
Selecting range A11.0 to be displayed

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
*

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
*

SELECT A RANGE TO BE DISPLAYED
*A11.0
BOAT TAPE
RANGE A11.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
ALL POINTS
RANGE A11.0     WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
*
```

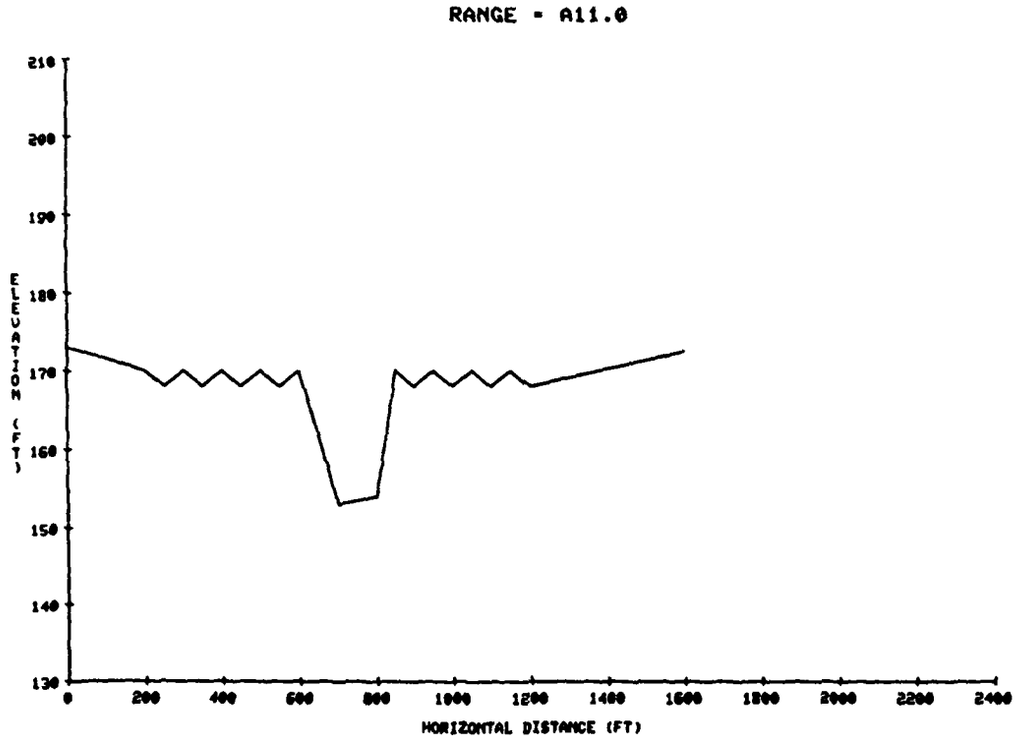
Selecting the TICPLOT option from the MAIN menu
Selecting the BOATTAPE option from the PLOT menu



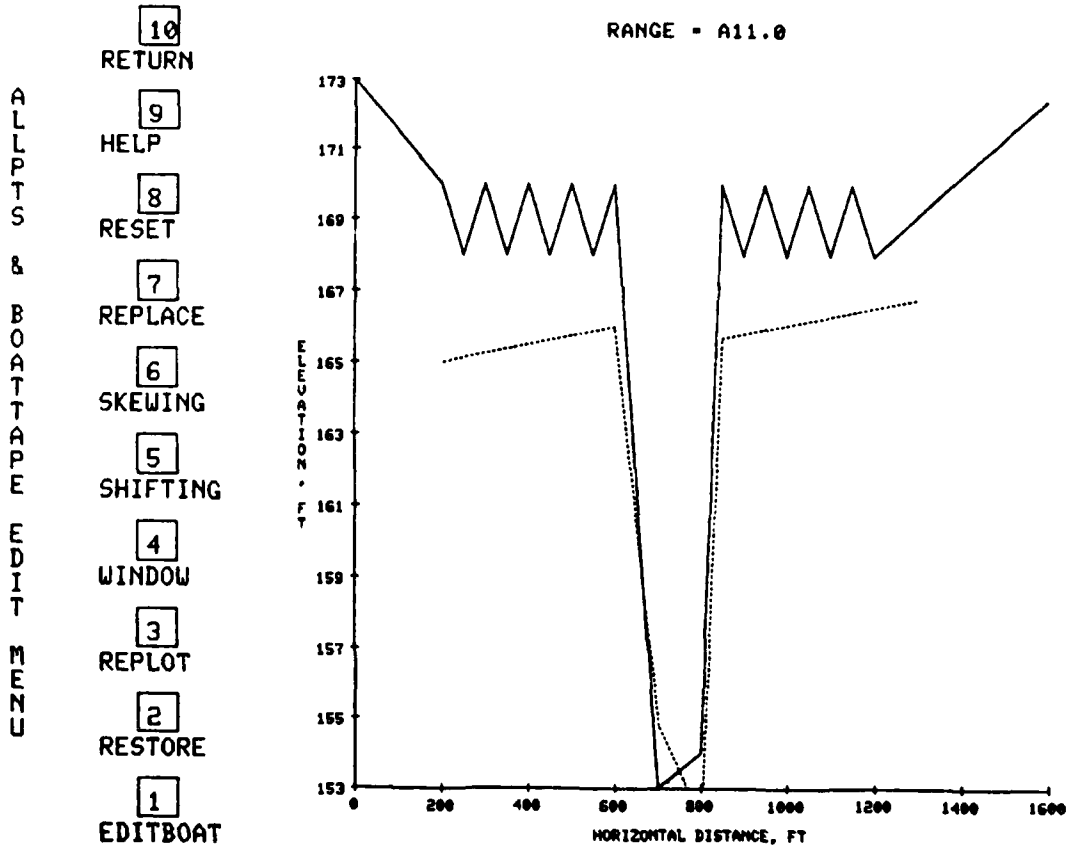
Selecting the HARDCOPY option from the PLOT menu
HARDCOPY option for original versus current range for A11.0

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.


ALL POINTS DATA SELECTED

ENTER STARTING STATION VALUE (FT)?
*0
ENTER STARTING ELEVATION VALUE (FT)?
*130
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
*2
```

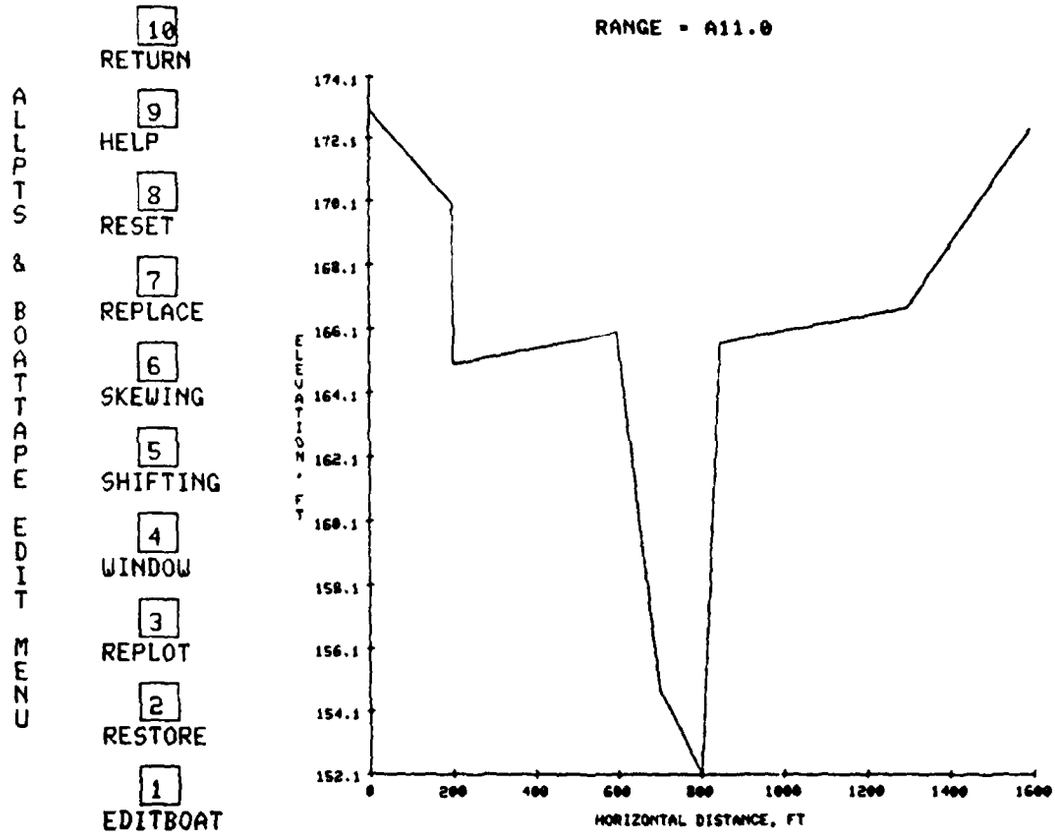
HARDCOPY plot of range A11.0 original points (solid)
versus current points (dashed). At this point, both coincide



Selecting the REPLACE option from the ALLPTS & BOATTAPE EDIT menu



Selecting the REPLOT option from the ALLPTS & BOATTAPE EDIT menu
Revised plot of range A11.0. Return to MAIN menu for updating



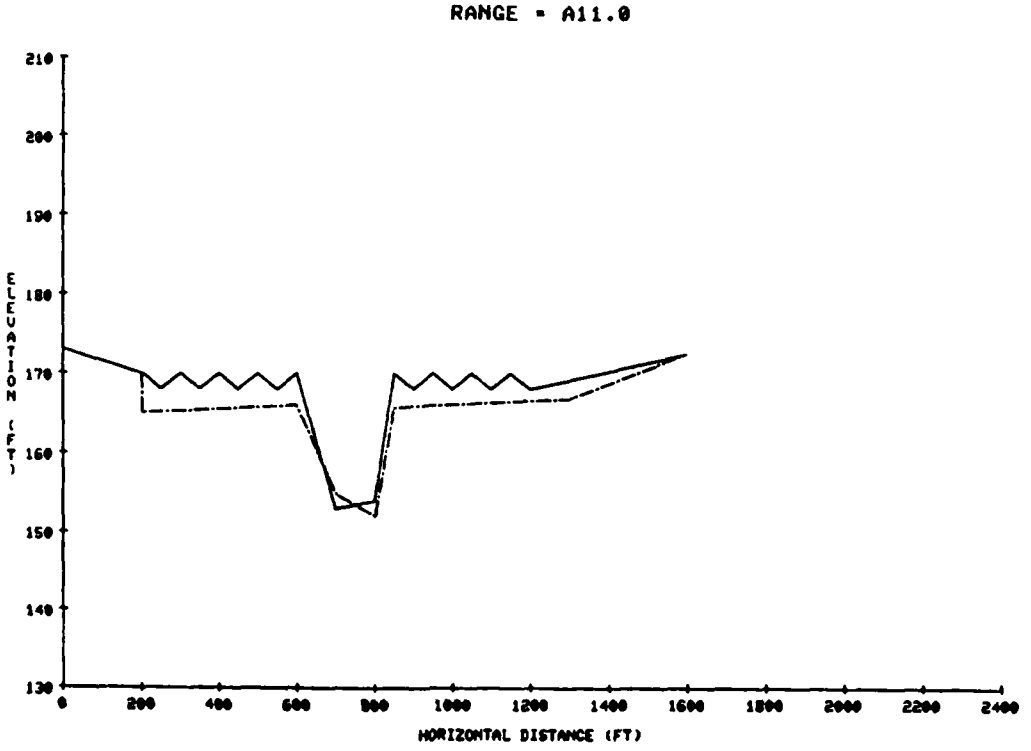
Selecting the UPDATE option from the MAIN menu to update range A11.0

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
-Y

ALLPTS FILES UPDATED FOR RANGE A11.0

FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BOATTAPE PTS AND
HEADER FILES?
-Y

BOATTAPE FILES UPDATED FOR RANGE A11.0
```

Selecting the HARDCOPY option from the MAIN menu

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.



ALL POINTS DATA SELECTED

ENTER STARTING STATION VALUE (FT)?
•0
ENTER STARTING ELEVATION VALUE (FT)?
•130
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
•2
```

HARDCOPY plot of the original curve (solid) versus the current curve (dashed) for range A11.0



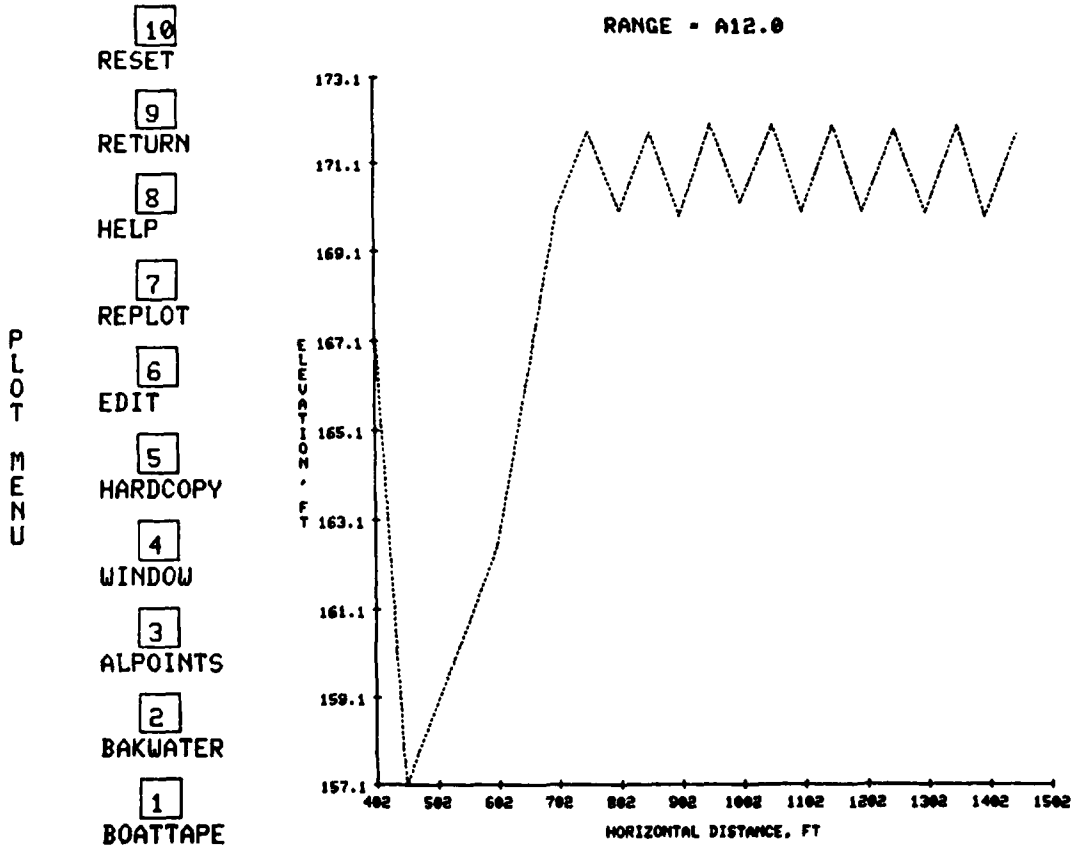
Respond with an 'N' to the question

```
 DO YOU WANT ANOTHER PLOT (Y OR N)
= N
```

Selecting the NEWRANGE option from the MAIN menu
Selecting range A12.0 for display

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=

SELECT A RANGE TO BE DISPLAYED
=A12.0
BOAT TAPE
RANGE A12.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
ALL POINTS
RANGE A12.0     WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=
```

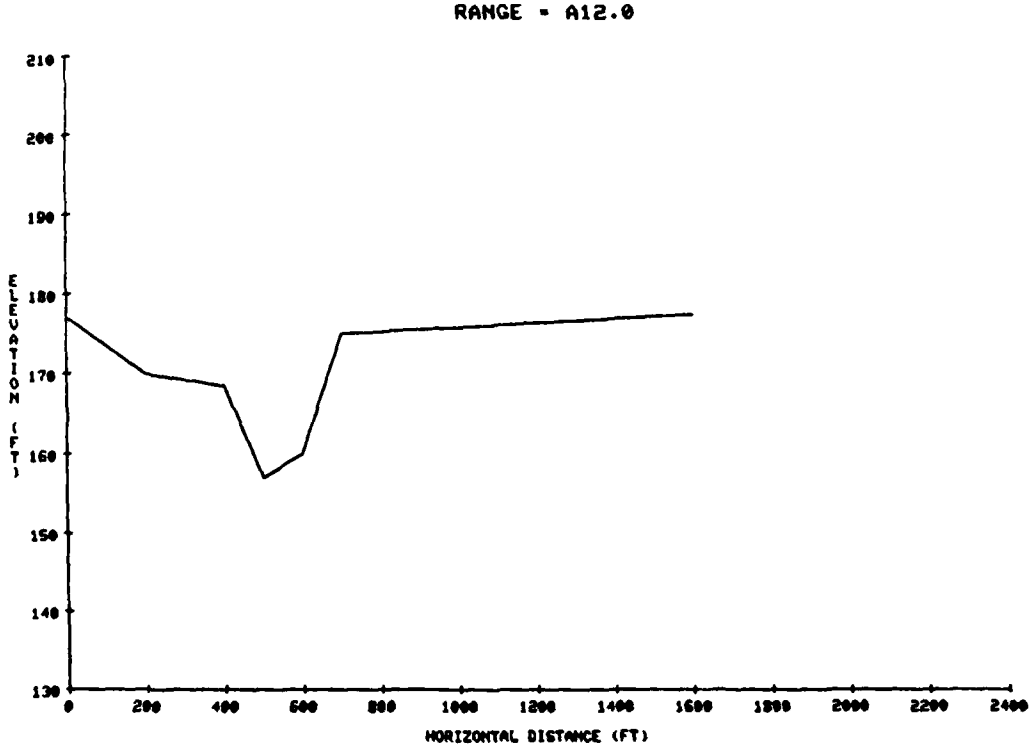
Selecting the TICPLOT option from the MAIN menu
Selecting the BOATTAPE option from the PLOT menu



Selecting the HARDCOPY option from the PLOT menu
HARDCOPY option to display the original curve versus the
current curve for range A12.0

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.


ALL POINTS DATA SELECTED

ENTER STARTING STATION VALUE (FT)?
=0
ENTER STARTING ELEVATION VALUE (FT)?
=130
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
=2
```

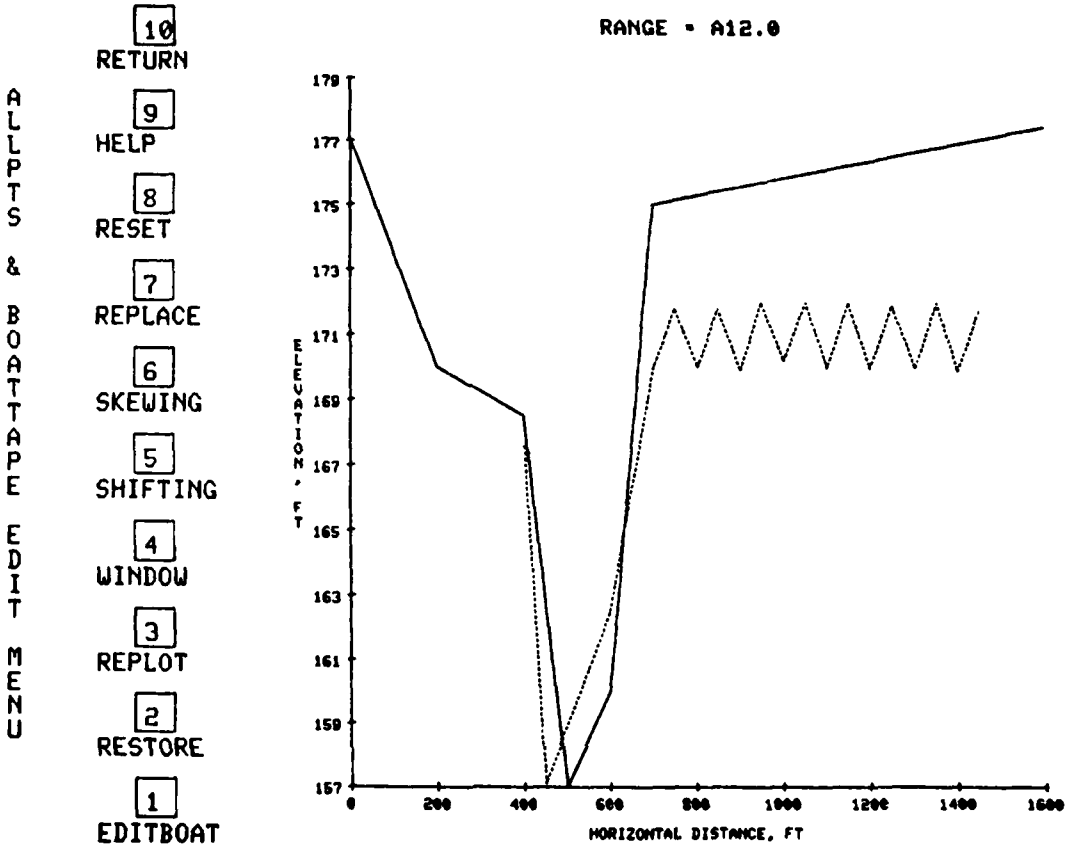
HARDCOPY plot of the original curve (solid) versus the current curve (dashed) for range A12.0 At this point, both coincide



Respond with an 'N' to the question

```
  DO YOU WANT ANOTHER PLOT (Y OR N)
= N
```

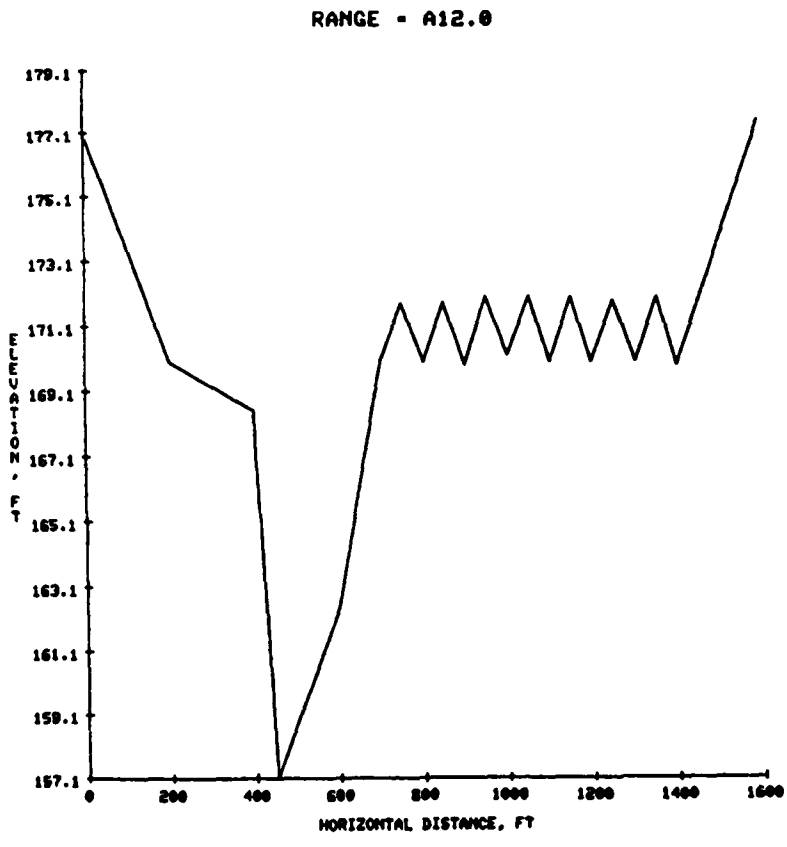
Selecting the REPLACE option from the ALLPTS & BOATTAPE EDIT menu



Selecting the REPLOT option from the ALLPTS & BOATTAPE EDIT menu
Revised plot of range A12.0. Return to MAIN menu for updating

ALLPTS & BOATTAPE EDIT MENU

10 RETURN
9 HELP
8 RESET
7 REPLACE
6 SKEWING
5 SHIFTING
4 WINDOW
3 REPLOT
2 RESTORE
1 EDITBOAT



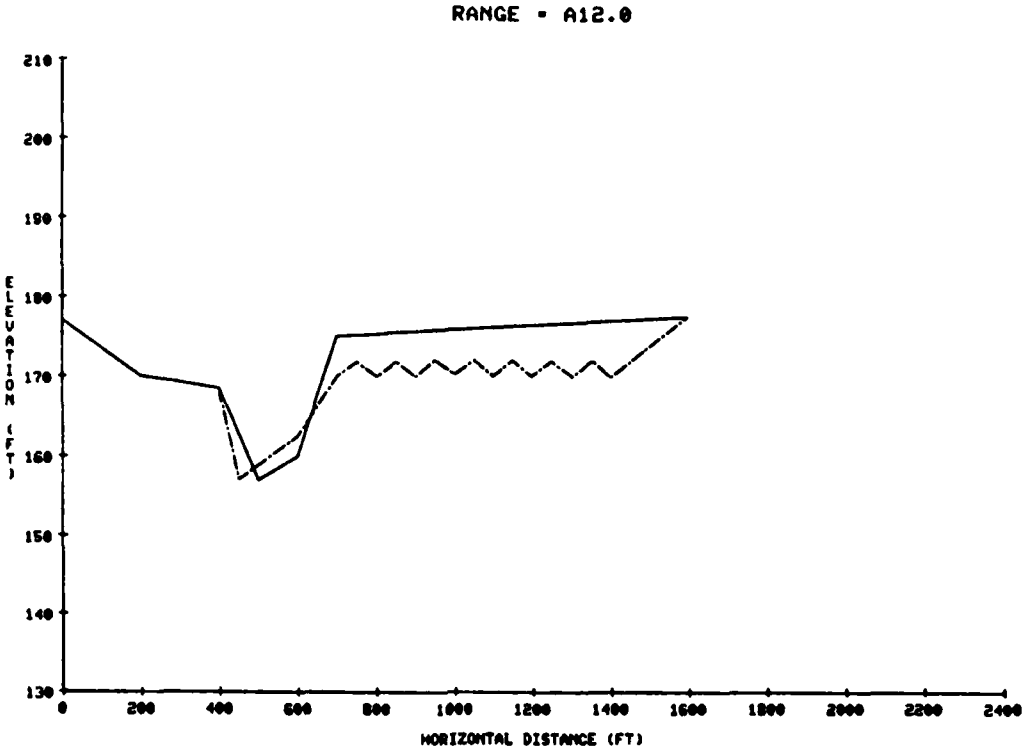
Selecting the UPDATE option from the MAIN menu to update range A12.0

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
•Y

ALLPTS FILES UPDATED FOR RANGE A12.0

FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BOATTAPE PTS AND
HEADER FILES?
•Y

BOATTAPE FILES UPDATED FOR RANGE A12.0
```

HARDCOPY option from the MAIN menu to display the original versus the current points for range A12.0

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.



ALL POINTS DATA SELECTED

ENTER STARTING STATION VALUE (FT)?
•0
ENTER STARTING ELEVATION VALUE (FT)?
•130
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
•2
```

Hardcopy plot for range A12.0 showing the original (solid) versus the current (dashed) points



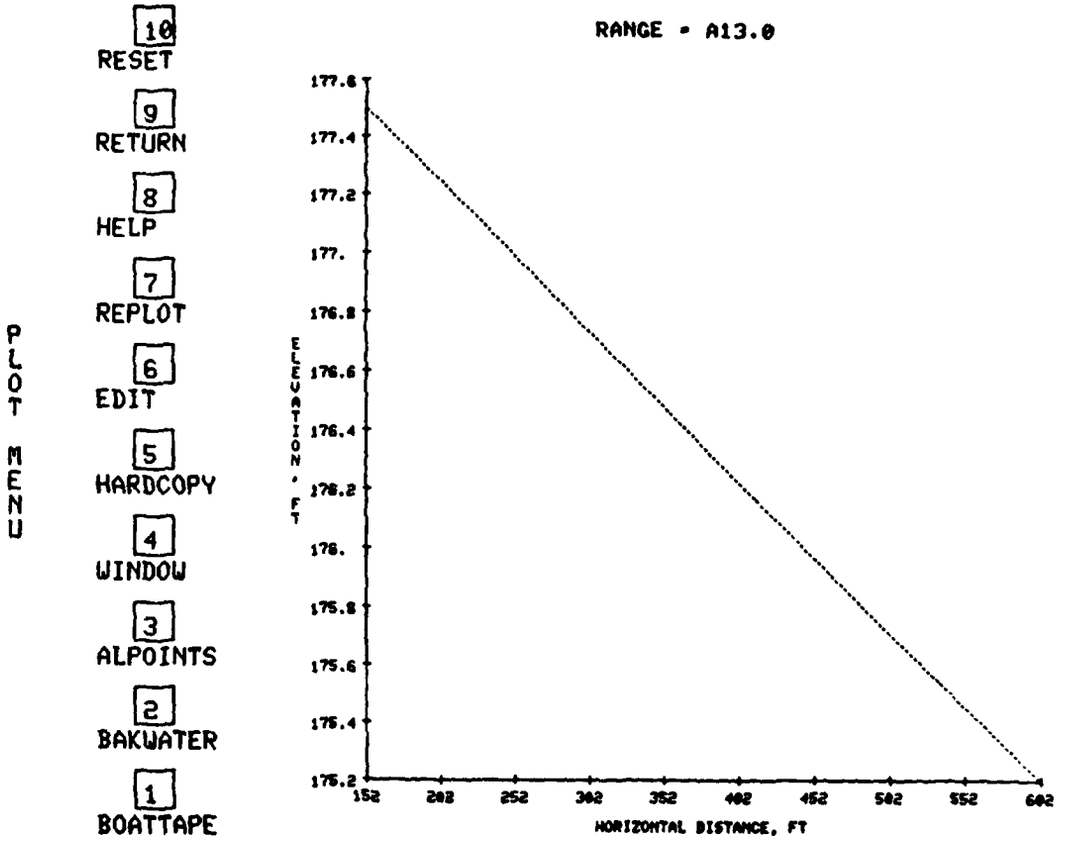
Respond with an 'N' to the question

```
 DO YOU WANT ANOTHER PLOT (Y OR N)
= N
```

Selecting the NEWRANGE option from the MAIN menu
Selecting range A13.0 for display

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=

SELECT A RANGE TO BE DISPLAYED
=A13.0
BOAT TAPE
RANGE A13.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
ALL POINTS
RANGE A13.0     WAS CREATED 03/27/80 AND LAST CHANGED 03/27/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=
```

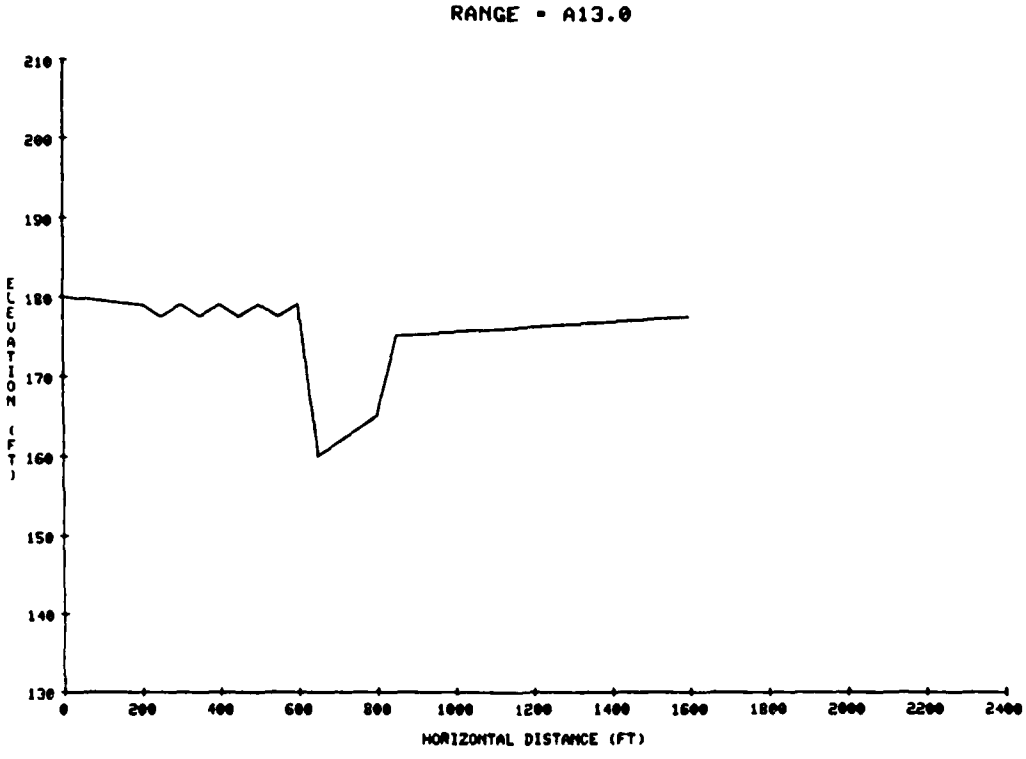
Selecting the TICPLOT option from the MAIN menu
Selecting the BOATTAPE option from the PLOT menu



Selecting the HARDCOPY option from the PLOT menu
HARDCOPY option to display the original versus the current
points for range A13.0

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.



ALL POINTS DATA SELECTED

ENTER STARTING STATION VALUE (FT)?
*0
ENTER STARTING ELEVATION VALUE (FT)?
*130
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
*2
```

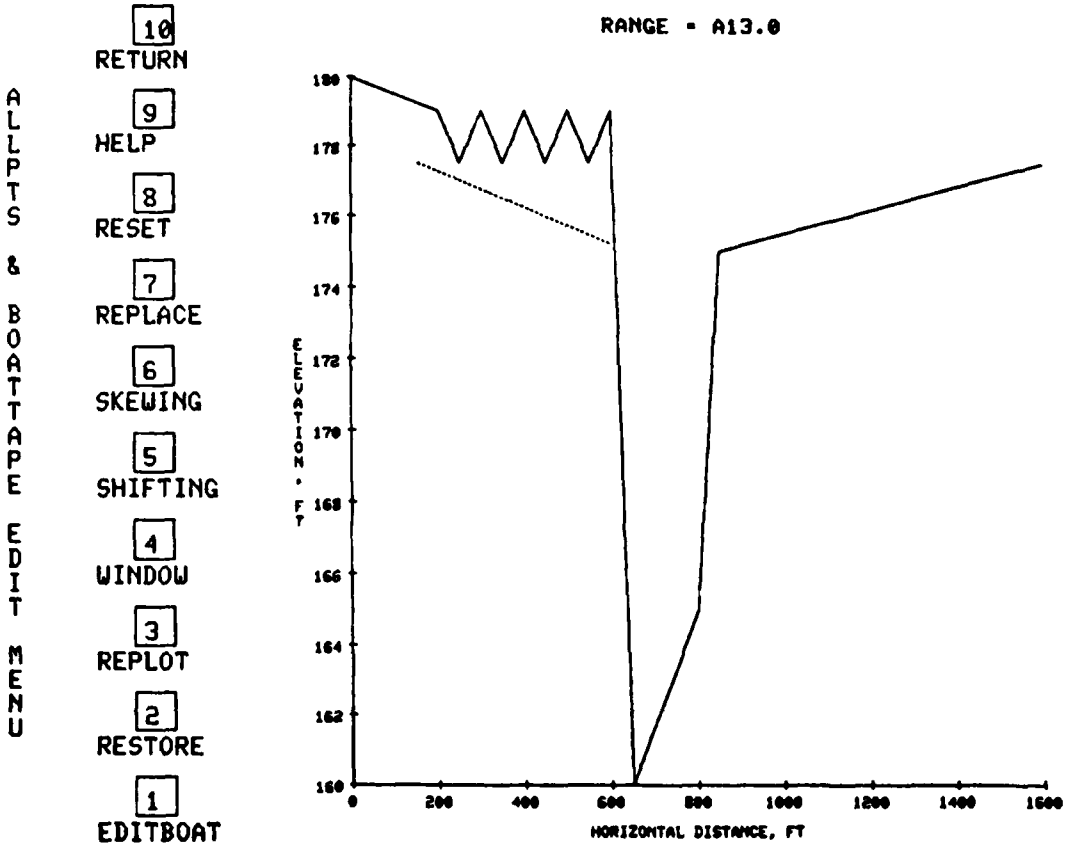
Plotting range A13.0 the original (solid) versus the current (dashed) points. At this point, both coincide



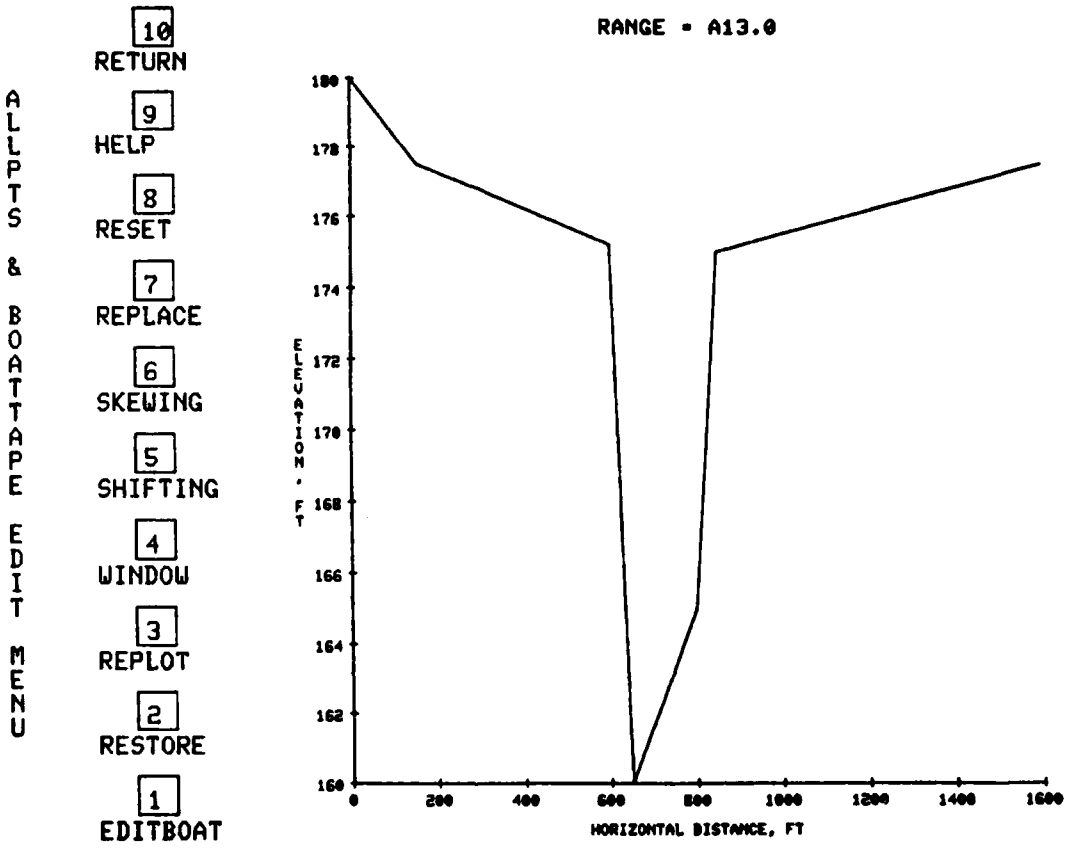
Respond with an 'N' to the question

DO YOU WANT ANOTHER PLOT (Y OR N)
= N

Selecting the REPLACE option from the ALLPTS & BOATTAPE EDIT menu



Selecting the REPLOT option from the ALLPTS & BOATTAPE EDIT menu
Revised plot of range A13.0. Return to the MAIN menu for updating



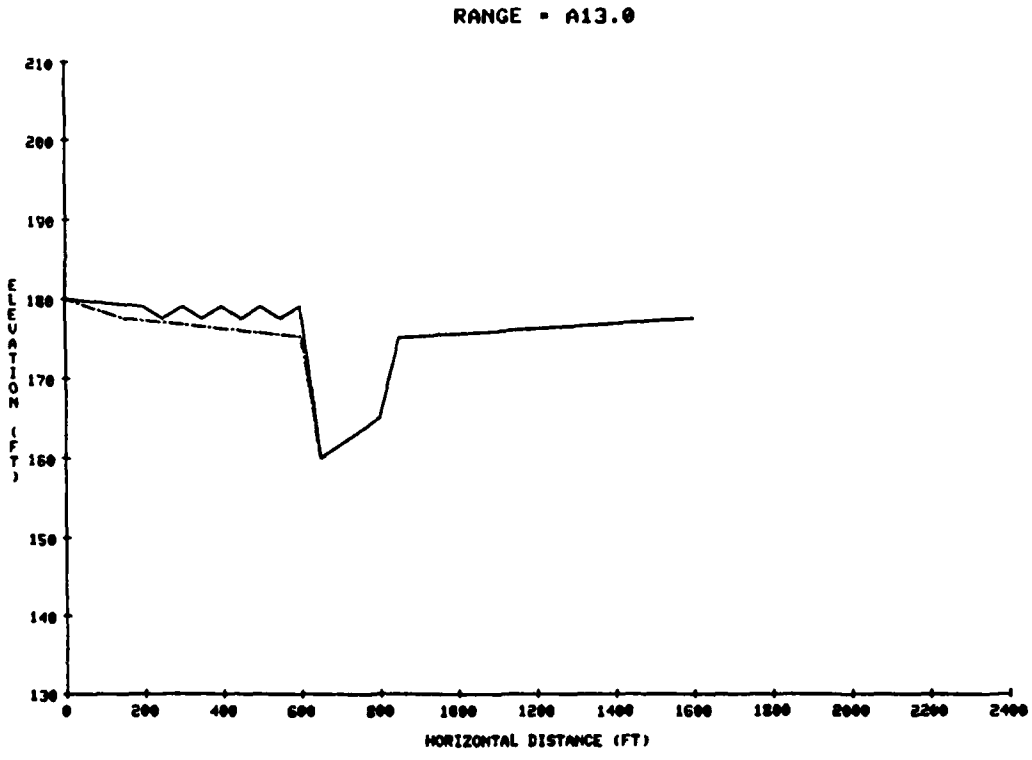
Selecting the UPDATE option from the MAIN menu
Updating the all points and the boattape data for range A13.0

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
•Y

ALLPTS FILES UPDATED FOR RANGE A13.0

FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BOATTAPE PTS AND
HEADER FILES?
•Y

BOATTAPE FILES UPDATED FOR RANGE A13.0
```

HARDCOPY option to plot the original (solid) versus the current (dashed) points for range A13.0

```
THIS ROUTINE PLOTS THE WORKING POINTS FILE (CURRENT)
VS. THE MASTER POINTS FILE (PREVIOUS) FOR EITHER
THE BACKWATER OR THE ALL POINTS DATA. THE CURRENT
DATA WILL BE DASHED LINE AND THE PREVIOUS DATA WILL BE
SOLID LINED

ENTER 'B' FOR BACKWATER OR 'A' FOR ALL POINTS. ANY
OTHER CHARACTER TERMINATES THE PLOT.


ALL POINTS DATA SELECTED

ENTER STARTING STATION VALUE (FT)?
•0
ENTER STARTING ELEVATION VALUE (FT)?
•130
WANT PLOT ON PLOTTER (TYPE 1) OR SCREEN (TYPE 2)
•2
```

HARDCOPY option plotting the original (solid) versus the current (dashed) curve for range A13.0



Respond with an 'N' to the question

DO YOU WANT ANOTHER PLOT (Y OR N)
= N

Selecting the QUIT option from the MAIN menu to terminate execution

```
PROGRAM IS EXITTED
$
```

At this point, the user has done the following:

(a) Created an all points data base

(b) Revised the all points data base with the new boattape information

The user would now want to create a backwater data base from the original all points curves; then, the user should re-build the current backwater data base with the revised all points data base (current). The user would then create a deck from the revised backwater data base and use this information for input to program LRD-I

Input file to create backwater data base (BW01X08X)

```
OLD BW01X08X
*LIST

      1       0       1
* TEST PROBLEM FOR HSTAR63,,BW01X08X,,
* POOL-11908 RESURVEY TO BE UPDATED WITH 1980 RESURVEY
* USED 6 RANGES WITH THE 2ND & LAST RANGES AS REPEATS OF THE
* 1ST & 5TH
* MARCH 1980 GET
Q1000.
R160.
P.1     .0003


A10.0   1.      9.              3.
B500.   700.    1600.                                                   700.
C1.     1.      1.                                      123     123
E1.1
E2.04   1000.   .06     1.
E3.08
G0.     170.    300.    169.    500.    167.    550.    155.    650.    150.
G700.   163.    1000.   165.    1300.   166.    1600.   167.
A10.1   1.      9.              3.                      1.
B500.   700.    1600.                                                   700.
C10000. 10000.  10000.                                  123     123
E1.1
E2.04   1000.   .06     1.
E3.08
A11.0   1.      21.             3.
B600.   850.    1600.                                                   850.
C10000. 10000.  10000.
E1.1
E2.04   1000.   .06     1.
E3.08
G0.     173.    200.    170.    250.    168.    300.    170.    350.    168.
G400.   170.    450.    168.    500.    170.    550.    168.    600.    170.
G700.   153.    800.    154.    850.    170.    900.    168.    950.    170.
G1000.  168.    1050.   170.    1100.   168.    1150.   170.    1200.   168.
```

Input file to create backwater data base (Continued)

```
G1600.  172.5
A12.0   1.      7.              3.
B400.   700.    1600.                                                   700.
C10000. 10000.  10000.
E1.1
E2.04   1000.   .06     1.
E3.08
G0.     177.    200.    170.    400.    168.5   500.    157.    600.    160.
G700.   175.    1600.   177.5
A13.0   1.      14.             3.
B600.   850.    1600.                                                   850.
C10000. 10000.  10000.                          123     123
E1.1
E2.04   1000.   .06
E3.08
G0.     180.    200.    179.    250.    177.5   300.    179.    350.    177.5
G400.   179.    450.    177.5   500.    179.    550.    177.5   600.    179.
G650.   160.    800.    165.    850.    175.    1600.   177.5
A13.1   1.      14.             3.              1.
B600.   850.    1600.                                                   850.
C10000. 10000.  10000.                          123     123
E1.1
E2.04   1000.   .06     1.
E3.08
  -1.
```

*

Creating backwater data base from file BW01X08X

```
REMO CLEARFILES
*RUNH HSTAR63

        03/28/80    14.865

DO YOU WANT TO CREATE NEW DATABASES (Y OR N)?
*Y

ARE YOU INPUTTING BOAT TAPE DATA (TYPE - 1)
                  ALL POINTS DATA(TYPE - 2)
                  BACKWATER DATA (TYPE - 3)
                  CREATE FILE ONLY (TYPE - 4)
                  BOAT TAPE FROM ALLPTS (TYPE - 5)
INPUT YOUR CHOICE?
*3

BACKWATER INFORMATION

ENTER INPUT FILE NAME?
*BW01X08X

A10.0   1.      9.              3.
IS THIS 'A' CARD O.K. - Y OR N?
*Y
CARD NO.     1                                                      700.
B500.   700.    1600.
CARD NO.     2
C1.     1.      1.                                      123     123
CARD NO.     3
E1.1
CARD NO.     4
E2.04   1000.   .06     1.
CARD NO.     5
E3.08
ANY CHANGES - Y OR N?
*N

A10.1   1.      9.              3.                      1.
```

```
IS THIS 'A' CARD O.K. - Y OR N?
*Y
CARD NO.      1
B500.    700.     1600.                                                    700.
CARD NO.      2
C10000. 10000.   10000.                                    123      123
CARD NO.      3
E1.1
CARD NO.      4
E2.04    1000.    .06      1.
CARD NO.      5
E3.08
ANY CHANGES - Y OR N?
*N

A11.0    1.       21.              3.
IS THIS 'A' CARD O.K. - Y OR N?
*Y
CARD NO.      1
B600.    850.     1600.                                                    850.
CARD NO.      2
C10000. 10000.   10000.
CARD NO.      3
E1.1
CARD NO.      4
E2.04    1000.    .06      1.
CARD NO.      5
E3.08
ANY CHANGES - Y OR N?
*N

A12.0    1.       7.               3.
IS THIS 'A' CARD O.K. - Y OR N?
*Y
CARD NO.      1
B400.    700.     1600.                                                    700.
CARD NO.      2
C10000. 10000.   10000.
```

```
CARD NO.     3
E1.1
CARD NO.     4
E2.04   1000.    .06     1.
CARD NO.     5
E3.08
ANY CHANGES - Y OR N?
*N

A13.0   1.      14.             3.
IS THIS 'A' CARD O.K. - Y OR N?
*Y
CARD NO.     1
B600.   850.    1600.                                                   850.
CARD NO.     2
C10000. 10000.  10000.                                          123     123
CARD NO.     3
E1.1
CARD NO.     4
E2.04   1000.    .06
CARD NO.     5
E3.08
ANY CHANGES - Y OR N?
*N

A13.1   1.      14.             3.                      1.
IS THIS 'A' CARD O.K. - Y OR N?
*Y
THIS CARD IS NOT CORRECT
CHECK IT CLOSELY
 -1.
DO YOU WANT TO INPUT A REVISED CARD?
*N
DO YOU WANT TO SKIP THIS CARD AND CONTINUE?
*Y
CARD NO.     1
B600.   850.    1600.                                                   850.
CARD NO.     2
```

```
C10000. 10000.  10000.                                    123     123
CARD NO.     3
E1.1
CARD NO.     4
E2.04   1000.    .06     1.
CARD NO.     5
E3.08
ANY CHANGES - Y OR N?
*N

*****************************
PROGRAM IS EXITTED NORMALLY
*****************************

DO YOU WANT TO EXERCISE PLOT OPTIONS (Y OR N)?
*Y
```

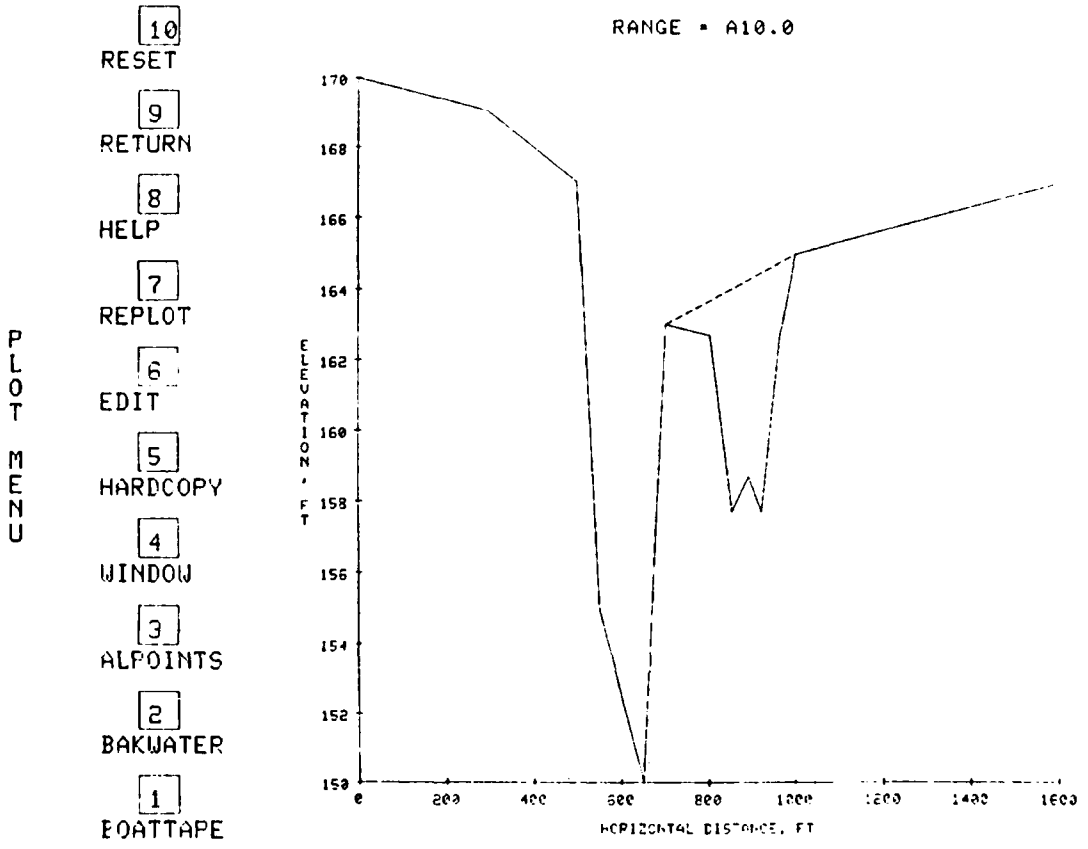
Executing the plot portion of the code
Attaching the all points data base (AP01X08X)
and the recently created backwater data base (BW01X08X)
and the boattape data base (BT1)

```
**************************************************

PLOT PROGRAM FOR LITTLE ROCK DISTRICT

**************************************************

INPUT THE BAUD RATE YOU ARE USING
TYPE IN EITHER 300 OR 1200?
*1200
ENTER ALL POINTS FILE NAME
*AP01X08X

ENTER BACKWATER FILE NAME
*BW01X08X

ENTER BOATTAPE FILE NAME
*BT1

ALL FILES ATTACHED!!.
```

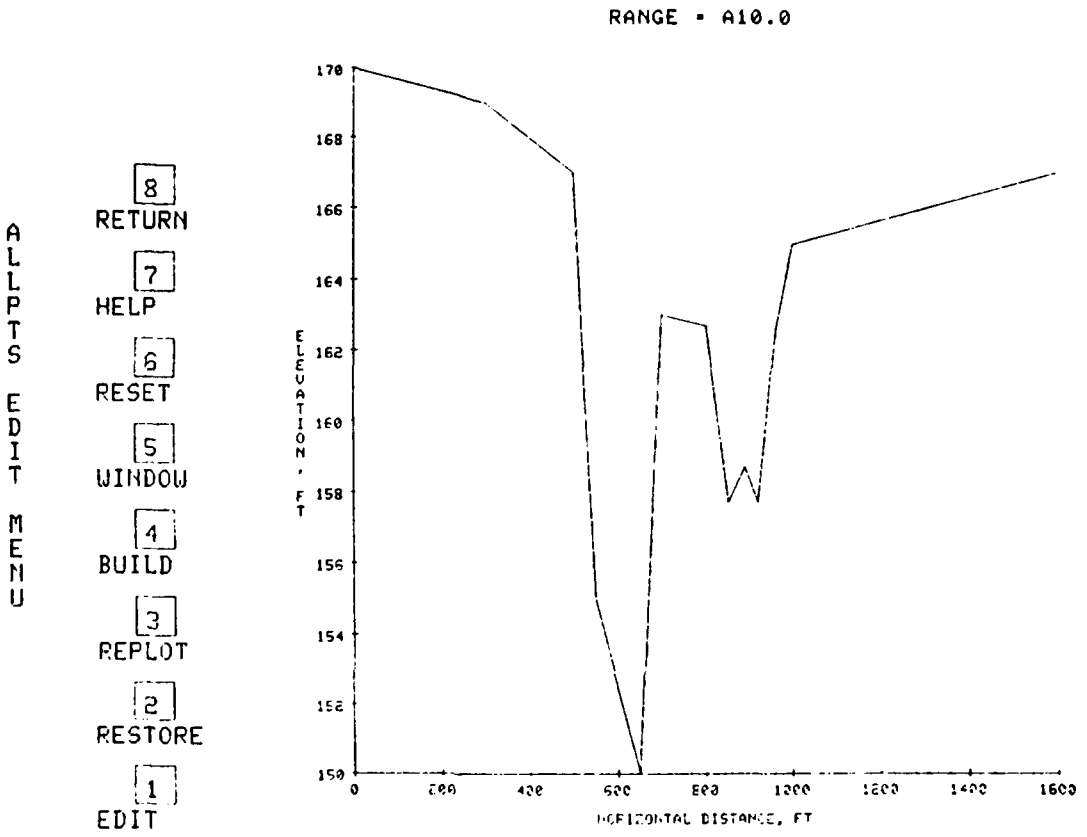
Selecting range A10.0 for display and editing

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING BACKWATER HEADER FILE?
=

SELECT A RANGE TO BE DISPLAYED
=A10.0
BOAT TAPE
RANGE A10.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
ALL POINTS
RANGE A10.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
BACKWATER
RANGE A10.0     WAS CREATED 03/20/80 AND LAST CHANGED 03/20/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=N
```

Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu
Selecting the BAKWATER option from the PLOT menu
Selecting the EDIT option from the PLOT menu



Selecting the BUILD option from the ALLPTS EDIT menu
Return to the MAIN menu for updating



Selecting the UPDATE option from the MAIN menu
Updating range A10.0 for the backwater data base

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
*N
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BACKWATER PTS AND HEADER
FILES?
*Y
```

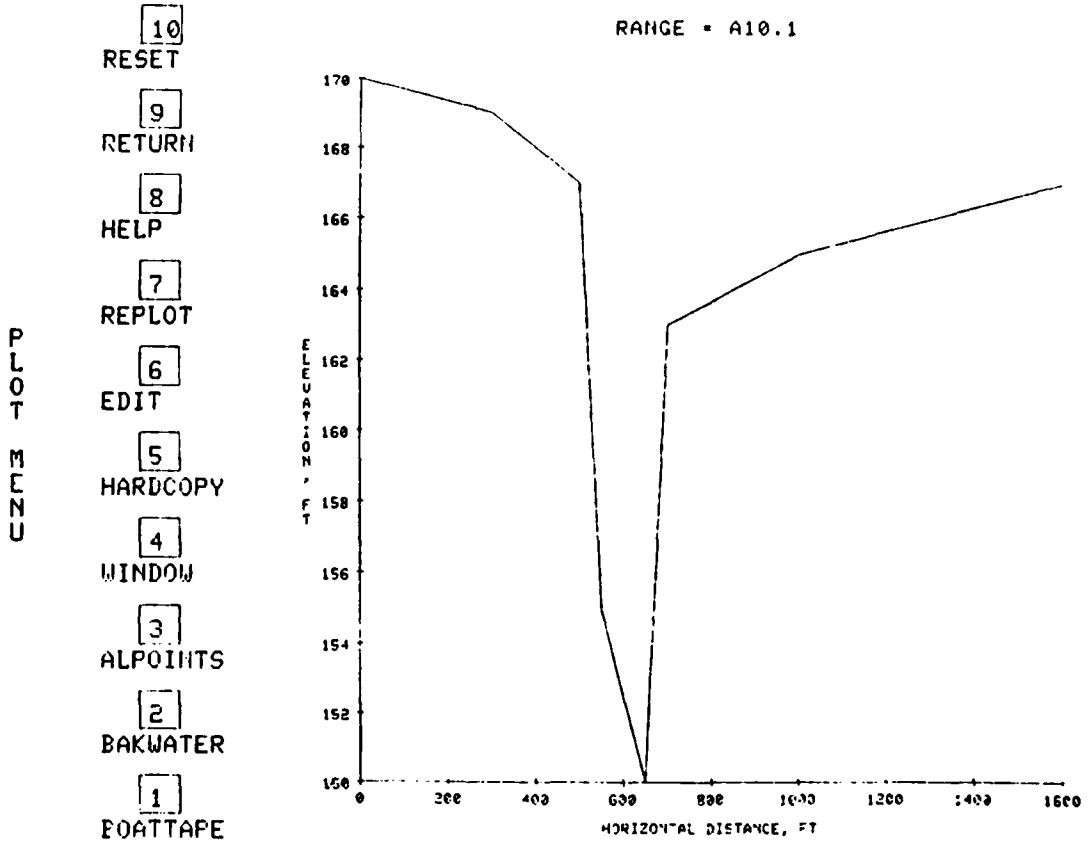
Updating range A10.0 for backwater data base (Continued)

```
THESE 'G' CARDS WILL BE USED FOR THE NEXT
RANGE AS ORIGINALLY SET WHEN CREATING THE
DATA BASE. DO YOU WANT THIS TO OCCUR?
•Y
CARD  1
A10.0   1.          14.        3.                    E
ANY CHANGES?
•N
CARD  2
B500.   700.    1600.                                                  700.
ANY CHANGES?
•N
CARD  3
C1.     1.      1.                                    123     123
ANY CHANGES?
•N
CARD  4
E1.1
ANY CHANGES?
•N
CARD  5
E2.04   1000.   .06     1.
ANY CHANGES?
•N
CARD  6
E3.08
ANY CHANGES?
•N
CARD  7

ANY CHANGES?
•N
CARD  8

ANY CHANGES?
•N
CARD  9

ANY CHANGES?
•N
CARD 10

ANY CHANGES?
•N
CARD 11

ANY CHANGES?
•N
CARD 12

ANY CHANGES?
•N

BACKWATER FILES UPDATED FOR RANGE A10.0
```

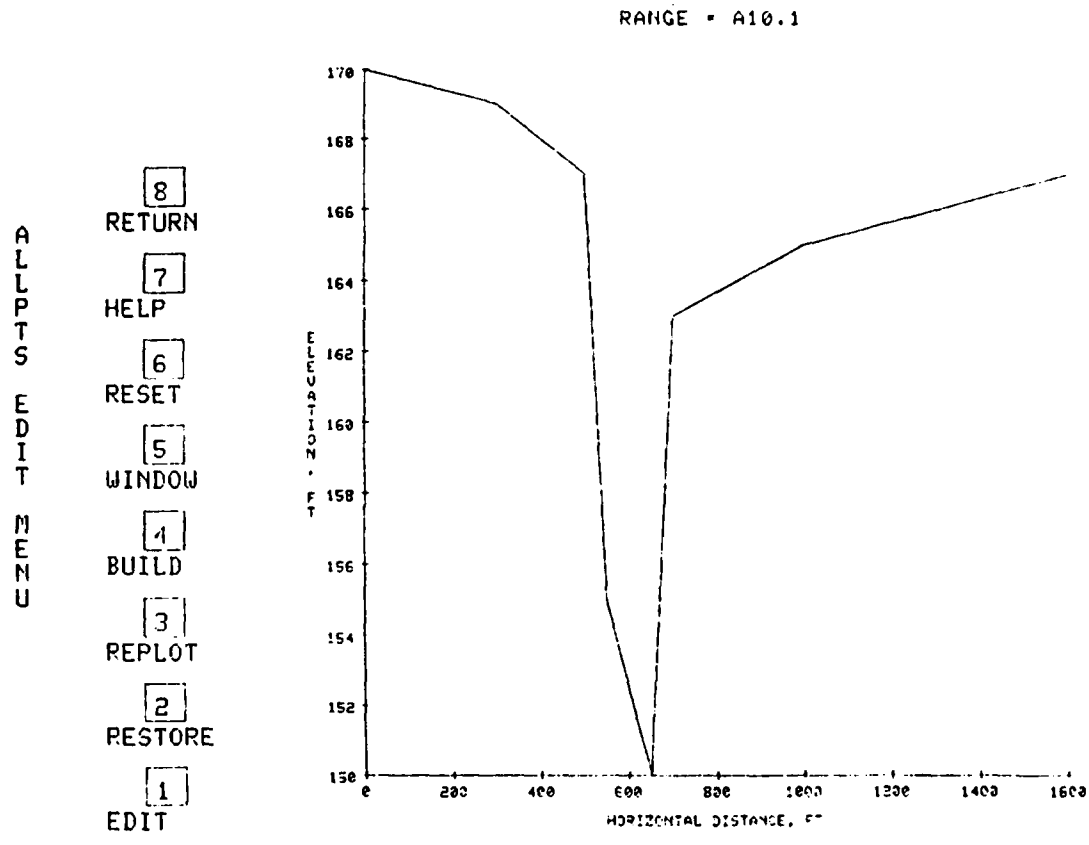
Selecting the NEWRANGE option in the MAIN menu
Selecting range A10.1 for display and editing

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING BACKWATER HEADER FILE?
=

SELECT A RANGE TO BE DISPLAYED
=A10.1
BOAT TAPE
RANGE A10.1     WAS NOT FOUND.
ALL POINTS
RANGE A10.1     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
BACKWATER
RANGE A10.1     WAS CREATED 03/20/80 AND LAST CHANGED 03/20/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=N
```

Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu
Selecting the BAKWATER option from the PLOT menu
Selecting the EDIT option from the PLOT menu



Selecting the ALPOINTS option from the EDIT menu
Selecting the BUILD option from the ALLPTS EDIT menu
Selecting the RETURN option from the ALLPTS EDIT menu



Selecting the UPDATE option from the MAIN menu
Updating range A10.1 in the backwater data base

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
*N
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BACKWATER PTS AND HEADER
FILES?
*Y
```

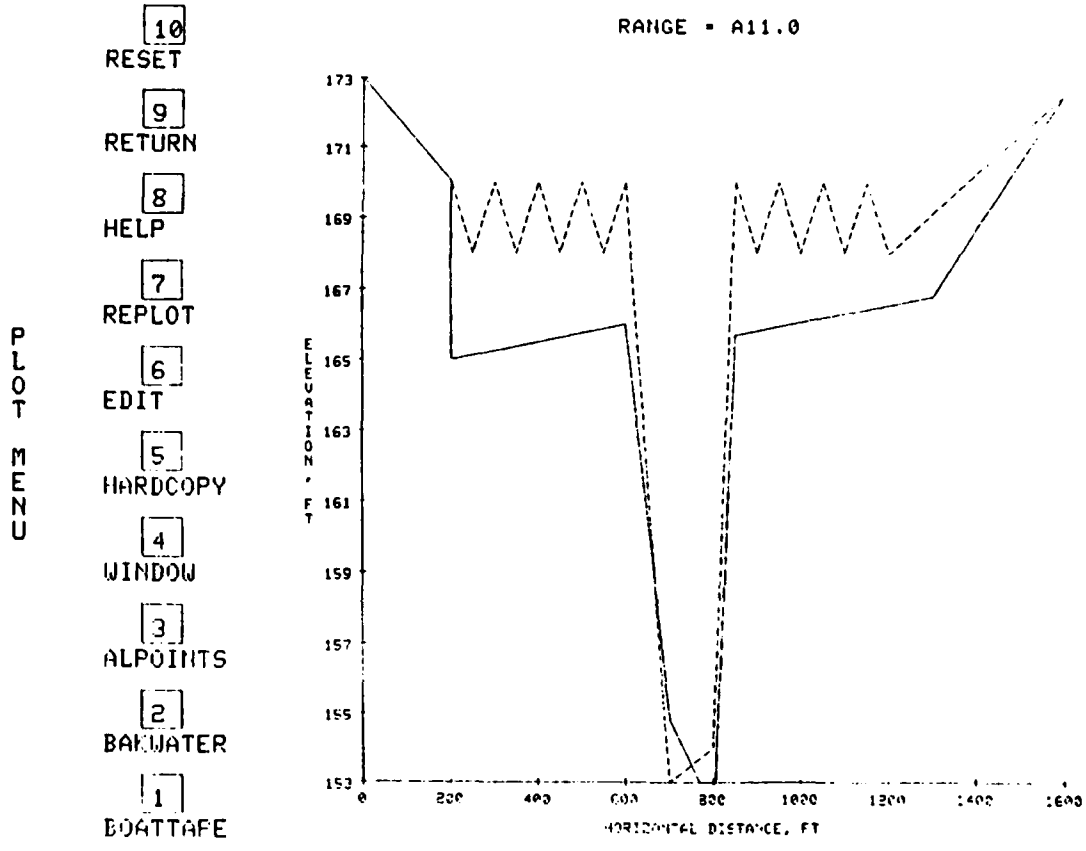
Updating range A10.1 for the backwater data base (Continued)

```
THIS RANGE ORIGINALLY USED THE PREVIOUS RANGE'S
'G' CARDS. DO YOU WANT THIS SIMILARLY TO OCCUR?
(THAT IS, REPLACE THE PREVIOUS RANGE'S 'G' CARDS
WITH THE RECENTLY UPDATED RANGES 'G' CARDS)
•Y
CARD  1
A10.1   1.          9.       3.                  1.
ANY CHANGES?
•
CARD  2
B500.   700.    1600.                                          700.
ANY CHANGES?
•
CARD  3
C10000. 10000.  10000.                              123    123
ANY CHANGES?
•
CARD  4
E1.1
ANY CHANGES?
•
CARD  5
E2.04   1000.   .06     1.
ANY CHANGES?
•
CARD  6
E3.08
ANY CHANGES?
•
CARD  7

ANY CHANGES?
•
CARD  8

ANY CHANGES?
•
CARD  9

ANY CHANGES?
•
CARD 10

ANY CHANGES?
•
CARD 11

ANY CHANGES?
•
CARD 12

ANY CHANGES?
•

BACKWATER FILES UPDATED FOR RANGE A10.1
```

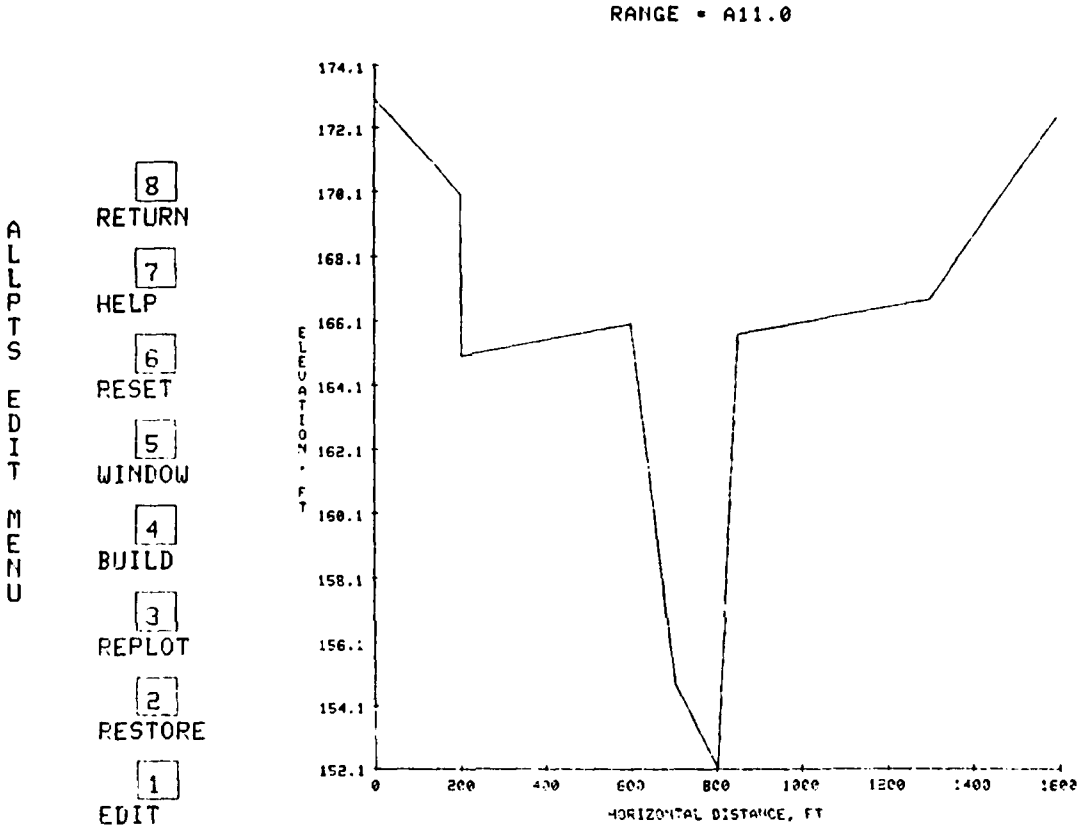
Selecting the NEWRANGE option from the MAIN menu
Selecting range A11.0 for display and editing

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING BACKWATER HEADER FILE?
=

SELECT A RANGE TO BE DISPLAYED
=A11.0
BOAT TAPE
RANGE A11.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
ALL POINTS
RANGE A11.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
BACKWATER
RANGE A11.0     WAS CREATED 03/20/80 AND LAST CHANGED 03/20/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=N
```

Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu
Selecting the BAKWATER option from the PLOT menu
Selecting the EDIT option from the PLOT menu



Selecting the ALPOINTS option from the EDIT menu
Selecting the BUILD option from the ALLPTS EDIT menu
Selecting the RETURN option from the ALLPTS EDIT menu



Selecting the UPDATE option from the MAIN menu
Updating range A11.0 for the backwater data base only

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
-N
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BACKWATER PTS AND HEADER
FILES?
-Y
```

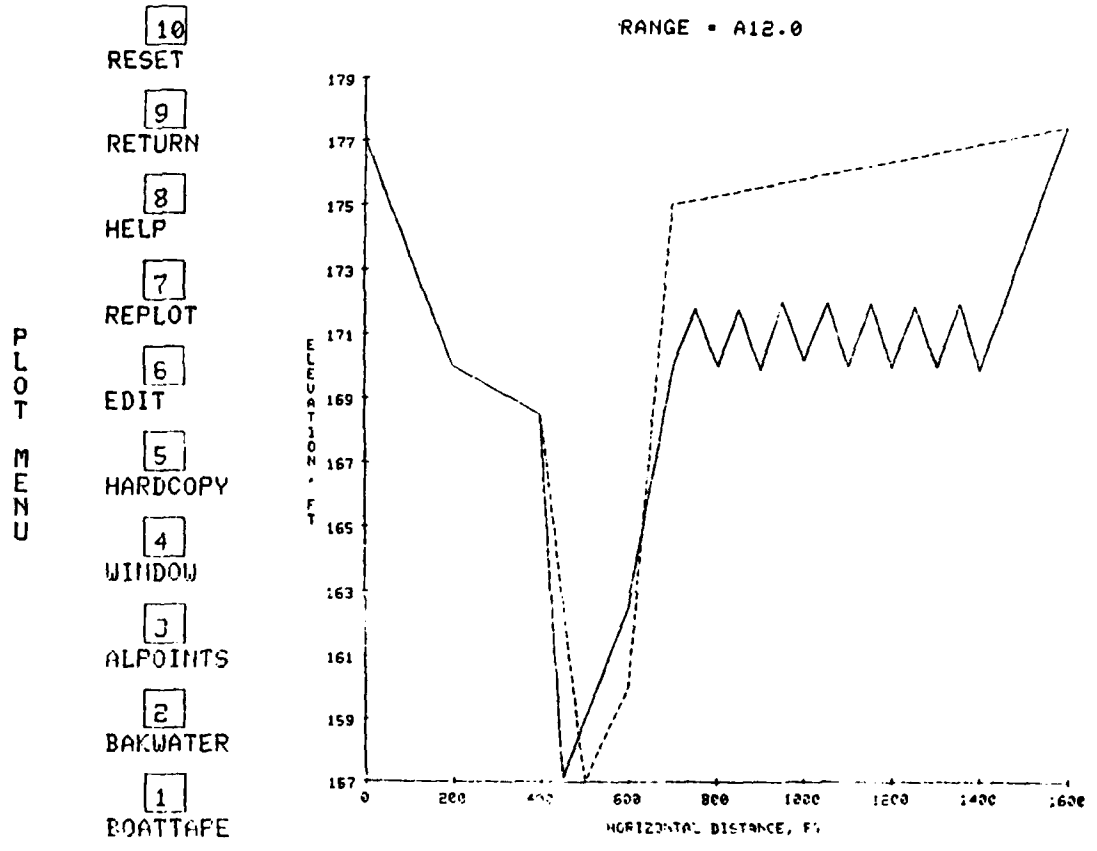
Updating range A11.0 for backwater data base (Continued)

```
CARD  1
A11.0   1.            9.        3.
ANY CHANGES?
*
CARD  2
B600.    850.    1600.
ANY CHANGES?                                                    850.
*
CARD  3
C10000. 10000.  10000.
ANY CHANGES?
*
CARD  4
E1.1
ANY CHANGES?
*
CARD  5
E2.04   1000.   .06     1.
ANY CHANGES?
*
CARD  6
E3.08
ANY CHANGES?
*
CARD  7

ANY CHANGES?
*
CARD  8

ANY CHANGES?
*
CARD  9

ANY CHANGES?
*
CARD 10

ANY CHANGES?
*
CARD 11

ANY CHANGES?
*
CARD 12

ANY CHANGES?
*

BACKWATER FILES UPDATED FOR RANGE A11.0
```

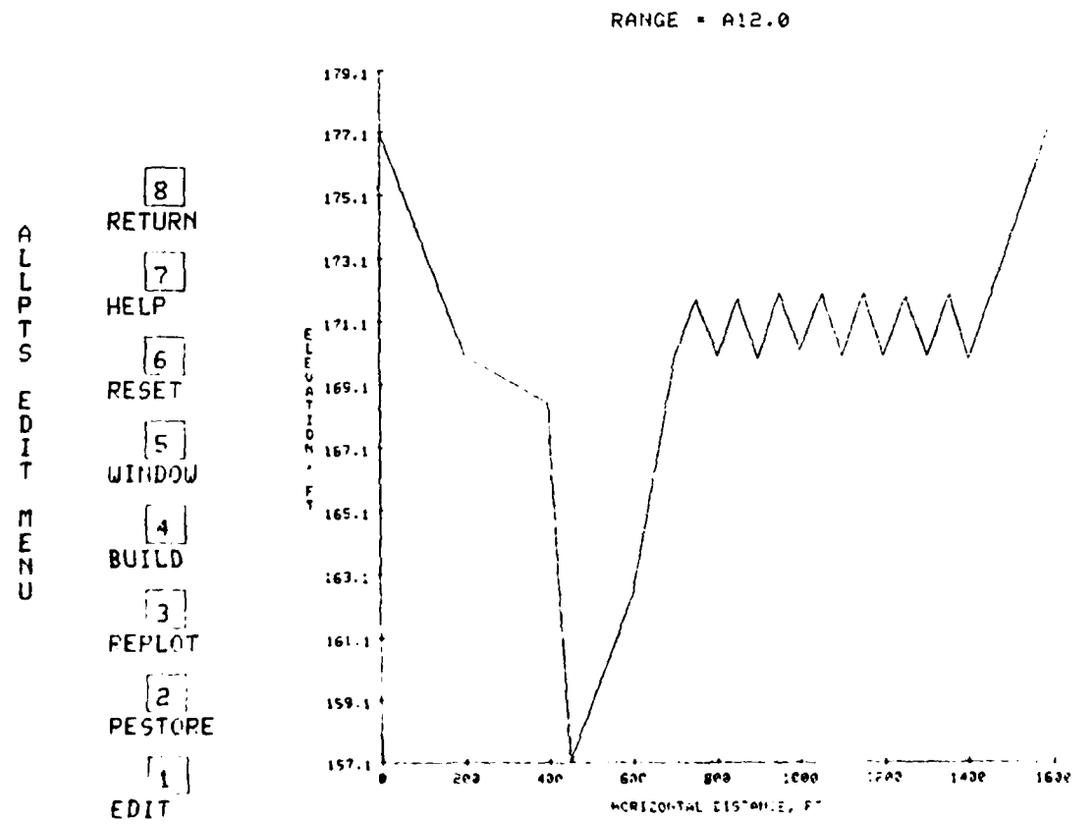
Selecting the NEWRANGE option from the MAIN menu
Selecting range A12.0 for display and editing

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING BACKWATER HEADER FILE?
=

SELECT A RANGE TO BE DISPLAYED
=A12.0
BOAT TAPE
RANGE A12.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
ALL POINTS
RANGE A12.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
BACKWATER
RANGE A12.0     WAS CREATED 03/20/80 AND LAST CHANGED 03/20/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=N
```

Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu
Selecting the BAKWATER option from the PLOT menu
Selecting the EDIT option from the PLOT menu



Selecting the ALPOINTS option from the EDIT menu
Selecting the BUILD option from the ALLPTS EDIT menu
Selecting the RETURN option from the ALLPTS EDIT menu



Selecting the UPDATE option from the MAIN menu
Updating range A12.0 for the backwater data base only

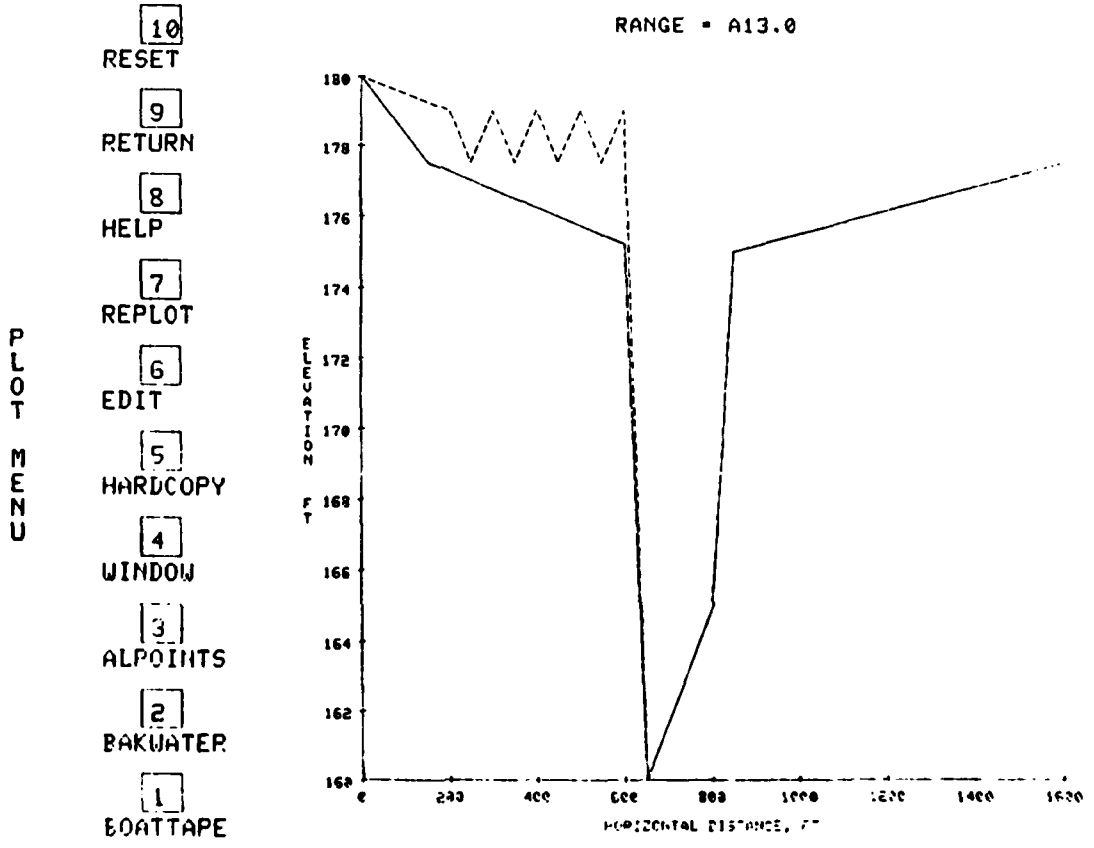
```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
-
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BACKWATER PTS AND HEADER
FILES?
-Y
```

```
CARD  1
A12.0   1.          23.        3.
ANY CHANGES?
*                                                          700.
CARD  2
B400.    700.    1600.
ANY CHANGES?
*
CARD  3
C10000. 10000.  10000.
ANY CHANGES?
*
CARD  4
E1.1
ANY CHANGES?
*
CARD  5
E2.04   1000.    .06     1.
ANY CHANGES?
*
CARD  6
E3.08
ANY CHANGES?
*
CARD  7
ANY CHANGES?
*
CARD  8
ANY CHANGES?
*
CARD  9
ANY CHANGES?
*
CARD 10
ANY CHANGES?
*
CARD 11
ANY CHANGES?
*
CARD 12
ANY CHANGES?
*
BACKWATER FILES UPDATED FOR RANGE A12.0
```

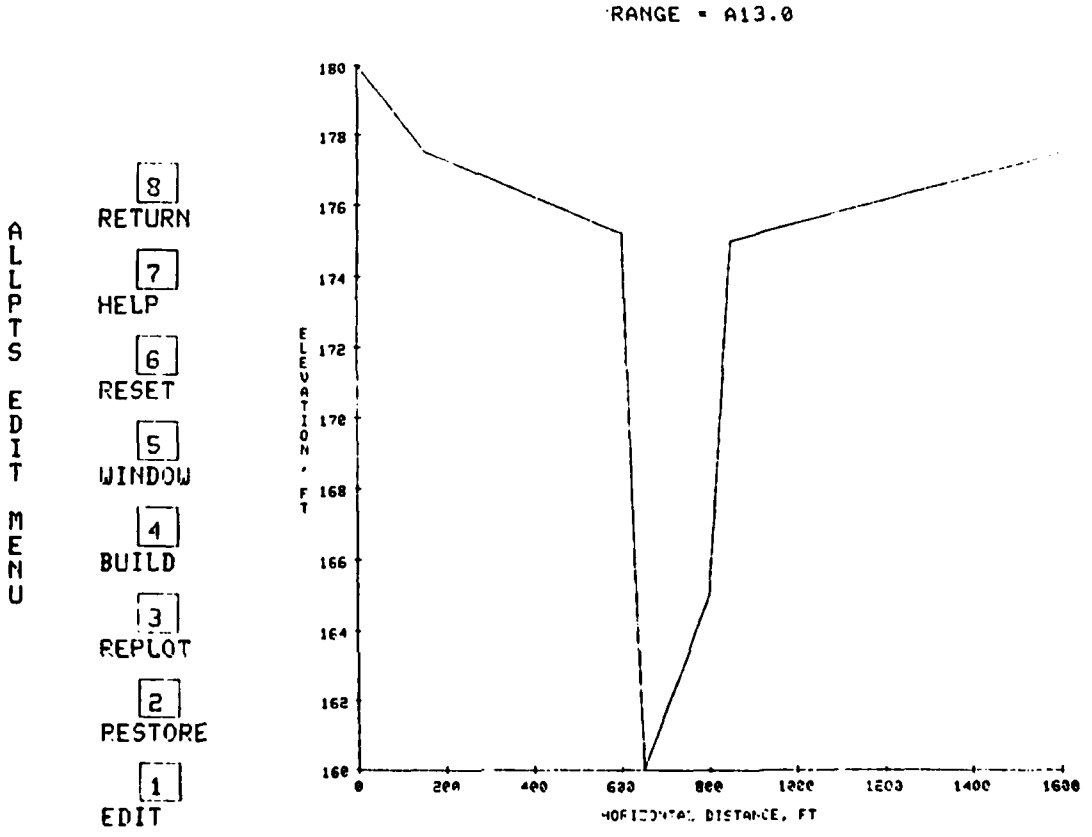
Selecting the NEWRANGE option from the MAIN menu
Selecting range A13.0 for display and editing

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING BACKWATER HEADER FILE?
=

SELECT A RANGE TO BE DISPLAYED
=A13.0
BOAT TAPE
RANGE A13.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
ALL POINTS
RANGE A13.0     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
BACKWATER
RANGE A13.0     WAS CREATED 03/20/80 AND LAST CHANGED 03/20/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=N
```

Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu
Selecting the BAKWATER option from the PLOT menu
Selecting the EDIT option from the PLOT menu



Selecting the ALPOINTS option from the EDIT menu
Selecting the BUILD option from the ALLPTS EDIT menu
Selecting the RETURN option from the ALLPTS EDIT menu



Selecting the UPDATE option from the MAIN menu
Selecting and updating range A13.0 for backwater data base only

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
•
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BACKWATER PTS AND HEADER
FILES?
•Y
```

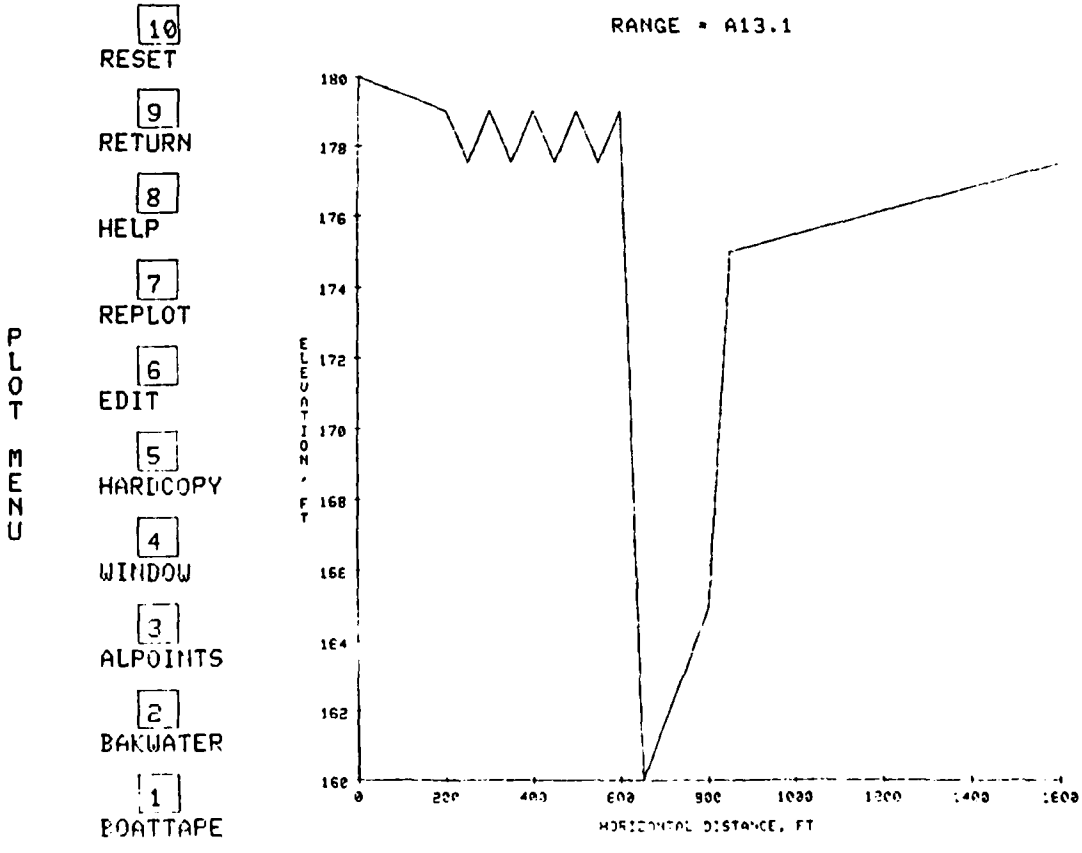
Updating range A13.0 for backwater data base (Continued)

```
THESE 'G' CARDS WILL BE USED FOR THE NEXT
RANGE AS ORIGINALLY SET WHEN CREATING THE
DATA BASE. DO YOU WANT THIS TO OCCUR?
=Y
CARD  1
A13.0   1.          7.       3.                    E
ANY CHANGES?
=
CARD  2
B600.   850.    1600.                                                  850.
ANY CHANGES?
=
CARD  3
C10000. 10000.  10000.                                 123     123
ANY CHANGES?
=
CARD  4
E1.1
ANY CHANGES?
=
CARD  5
E2.04   1000.   .06
ANY CHANGES?
=
CARD  6
E3.08
ANY CHANGES?
=
CARD  7

ANY CHANGES?
=
CARD  8

ANY CHANGES?
=
CARD  9

ANY CHANGES?
=
CARD 10

ANY CHANGES?
=
CARD 11

ANY CHANGES?
=
CARD 12

ANY CHANGES?
=

BACKWATER FILES UPDATED FOR RANGE A13.0
```

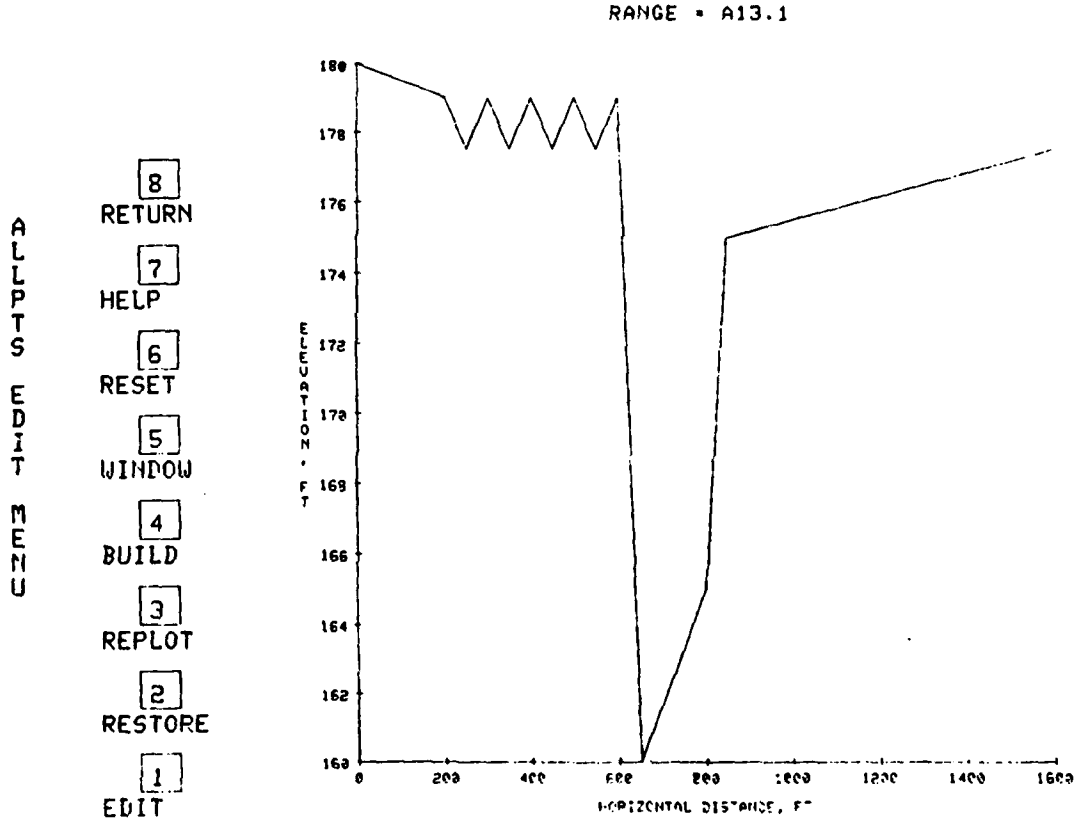
Selecting the NEWRANGE option from the MAIN menu
Selecting range A13.1 for display and editing

```
SELECTING A RANGE

DO YOU WANT TO LIST THE WORKING BOAT TAPE HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING ALL POINTS HEADER FILE?
=

DO YOU WANT TO LIST THE WORKING BACKWATER HEADER FILE?
=

SELECT A RANGE TO BE DISPLAYED
=A13.1
BOAT TAPE
RANGE A13.1     WAS NOT FOUND.
ALL POINTS
RANGE A13.1     WAS CREATED 03/19/80 AND LAST CHANGED 03/19/80
BACKWATER
RANGE A13.1     WAS CREATED 03/20/80 AND LAST CHANGED 03/20/80

IF YOU WERE NOT ABLE TO FIND THIS RANGE IN ALL
HEADER FILES, WOULD YOU LIKE TO TRY ANOTHER RANGE?
=N
```

Selecting the TICPLOT option from the MAIN menu
Selecting the ALPOINTS option from the PLOT menu
Selecting the BAKWATER option from the PLOT menu
Selecting the EDIT option from the PLOT menu



Selecting the ALPOINTS option from the EDIT menu
Selecting the BUILD option from the ALLPTS EDIT menu
Selecting the RETURN option from the ALLPTS EDIT menu



Selecting the UPDATE option from the MAIN menu
Updating range A13.1 for the backwater data base only

```
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING ALLPTS AND HEADER FILES?
*
FOR THIS RANGE ONLY, DO YOU WANT TO
UPDATE THE WORKING BACKWATER PTS AND HEADER
FILES?
*Y
```

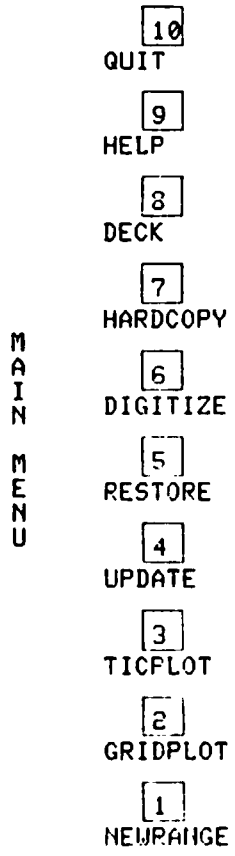
Updating range A13.1 for backwater data base (Continued)

```
THIS RANGE ORIGINALLY USED THE PREVIOUS RANGE'S
'G' CARDS. DO YOU WANT THIS SIMILARLY TO OCCUR?
(THAT IS, REPLACE THE PREVIOUS RANGE'S 'G' CARDS
WITH THE RECENTLY UPDATED RANGES 'G' CARDS)
•Y
CARD  1
A13.1   1.          14.       3.                    1.
ANY CHANGES?
•
CARD  2
B600.   850.   1600.                                          850.
ANY CHANGES?
•
CARD  3
C10000. 10000.  10000.                                123     123
ANY CHANGES?
•
CARD  4
E1.1
ANY CHANGES?
•
CARD  5
E2.04   1000.   .06     1.
ANY CHANGES?
•
CARD  6
E3.08
ANY CHANGES?
•
CARD  7

ANY CHANGES?
•
CARD  8

ANY CHANGES?
•
CARD  9

ANY CHANGES?
•
CARD 10

ANY CHANGES?
•
CARD 11

ANY CHANGES?
•
CARD 12

ANY CHANGES?
•

BACKWATER FILES UPDATED FOR RANGE A13.1
```

AD-A096 726 ARMY ENGINEER WATERWAYS EXPERIMENT STATION VICKSBURG MS F/G 9/2
USER'S GUIDE FOR THE INTERACTIVE COMPUTER PROGRAM 'LITLPLT',(U)
JAN 81 M E GEORGE, J M JONES
UNCLASSIFIED WES-INSTRUCTION-K-81-1 NL

Now that all the ranges have been updated in the backwater data base, the user is ready to create a deck to be used for program LRD-I

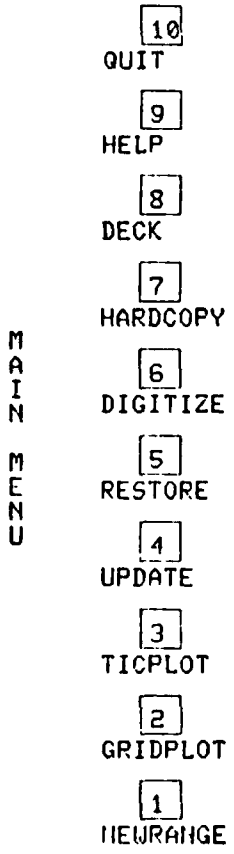
Selecting the DECK option from the MAIN menu



Executing the DECK option from the MAIN menu

```
THIS ROUTINE ALLOWS THE USER TO CREATE A DECK
IMAGE FOR THIS POOL TO BE USED IN T. THOMAS' PROGRAM.
ALL CARD IMAGES WILL BE STORED IN A FILE.
ONLY ONE POOL WILL BE STORED AT ANY ONE GIVEN TIME.
INPUT FILE NAME
*BW01X

DECK HAS BEEN CREATED FOR THIS POOL.
```

Exiting the program by selecting the QUIT option from the MAIN menu



Output file created from the DECK option in the MAIN menu

```
OLD BU01X
$EDIT
-VERIFY
-S
-F,CB
      1         0         1
* TEST PROBLEM FOR HSTARS3,,BU01XORX,,
* FOOL-11908 RESURVEY TO BE UPDATED WITH 1980 RESURVEY
* USED 6 RANGES WITH THE 2ND & LAST RANGES AS REPEATS OF THE
* 1ST & 5TH
* MARCH 1980 GET
Q1000.
R160.
P.1     .0003

A10.0   1.          14.         3.
B500.   700.    1600.                                                  700.
C1.     1.      1.                                          123     123
E1.1
E2.04   1000.   .06     1.
E3.08
G    0.    170.0   300.0   169.0   500.0   167.0   550.0   155.2   650.0   150.0
G  700.0   163.0  1000.0   165.0  1300.0   166.0  1600.0   167.2     0.      0.
G    0.      0.
A10.1   1.          9.          3.                      1.
B500.   700.    1600.                                                  700.
C10000. 10000.  10000.                                      123     123
E1.1
E2.04   1000.   .06     1.
E3.08
A11.0   1.          9.          3.
B600.   850.    1600.                                                  850.
C10000. 10000.  10000.
E1.1
E2.04   1000.   .06     1.
E3.08
G    0.    173.0   200.0   170.0   202.0   165.0   600.0   166.0   702.0   154.8
G  802.0   152.1   850.0   165.7  1302.0   166.8  1600.0   172.5     0.      0.
G    0.      0.
A12.0   1.          23.         3.
B400.   700.    1600.                                                  700.
C10000. 10000.  10000.
E1.1
E2.04   1000.   .06     1.
E3.08
G    0.    177.0   200.0   170.0   400.0   168.5   402.0   167.6   450.0   157.1
G  600.0   162.5   700.0   170.0   752.0   171.8   804.0   170.0   852.0   171.8
G  902.0   169.9   952.0   172.0  1002.0   170.2  1054.0   172.0  1102.2   172.0
G 1152.0   172.0  1200.0   170.0  1252.0   171.9  1304.0   170.0  1356.0   172.0
G 1402.0   169.9  1452.0   171.8  1600.0   177.5
A13.0   1.          7.          3.                                     850.
B600.   850.    1600.                                                  850.
C10000. 10000.  10000.                                      123     123
E1.1
```

Output file created from the DECK option in the MAIN menu (Continued)

```
P;55

E1.1
E2.04   1000.   .06
E3.08
G     0.    180.0   200.0   179.0   250.0   177.5   300.0   179.0   350.0   177.5
G   400.0   179.0   450.0   177.5   500.0   179.0   550.0   177.5   600.0   179.0
G   650.0   160.0   800.0   165.0   850.0   175.0  1600.0   177.5
A13.1   1.          14.         3.                          1.                  850.
B600.   850.    1600.
C10000. 10000.  10000.                                      123     123
E1.1
E2.04   1000.   .06     1.
E3.08
  -1.

end of file - request executed  13 times

-
```

In accordance with letter from DAEN-RDC, DAEN-ASI dated 22 July 1977, Subject: Facsimile Catalog Cards for Laboratory Technical Publications, a facsimile catalog card in Library of Congress MARC format is reproduced below.

George, Michael E
User's guide for the interactive computer program "LITLPLT" / by Michael E. George, James M. Jones II. Vicksburg, Miss. : U. S. Waterways Experiment Station ; Springfield Va. : available from National Technical Information Service, 1981.
78, [115] p. : ill. ; 27 cm. (Instruction report - U. S. Army Engineer Waterways Experiment Station ; K-81-1)
Prepared for U. S. Army Engineer District, Little Rock, Little Rock, Ark.

1. Computer graphics. 2. Computer programs. 3. Computerized simulation. 4. Data processing. 5. Sediment. I. Jones, James M., joint author. II. United States. Army. Corps of Engineers. Little Rock District. III. Series: United States. Waterways Experiment Station, Vicksburg, Miss. Instruction report ; K-81-1.
TA7.W34i no.K-81-1